# THE FAR EASTERN REVIEW

## ENGINEERING FINANCE COMMERCE

上海仁記路拾六號

遠東時報

## BRITAIN'S NEW POLICY IN CHINA

THE ANTI-COMMUNIST GOVERNMENT IN NANKING

CURIOUS CASE OF MR. POWELL

AMERICAN CAPITAL, CHINESE LABOR AND PHILIPPINE LANDS!

KOREA AND IRRIGATION

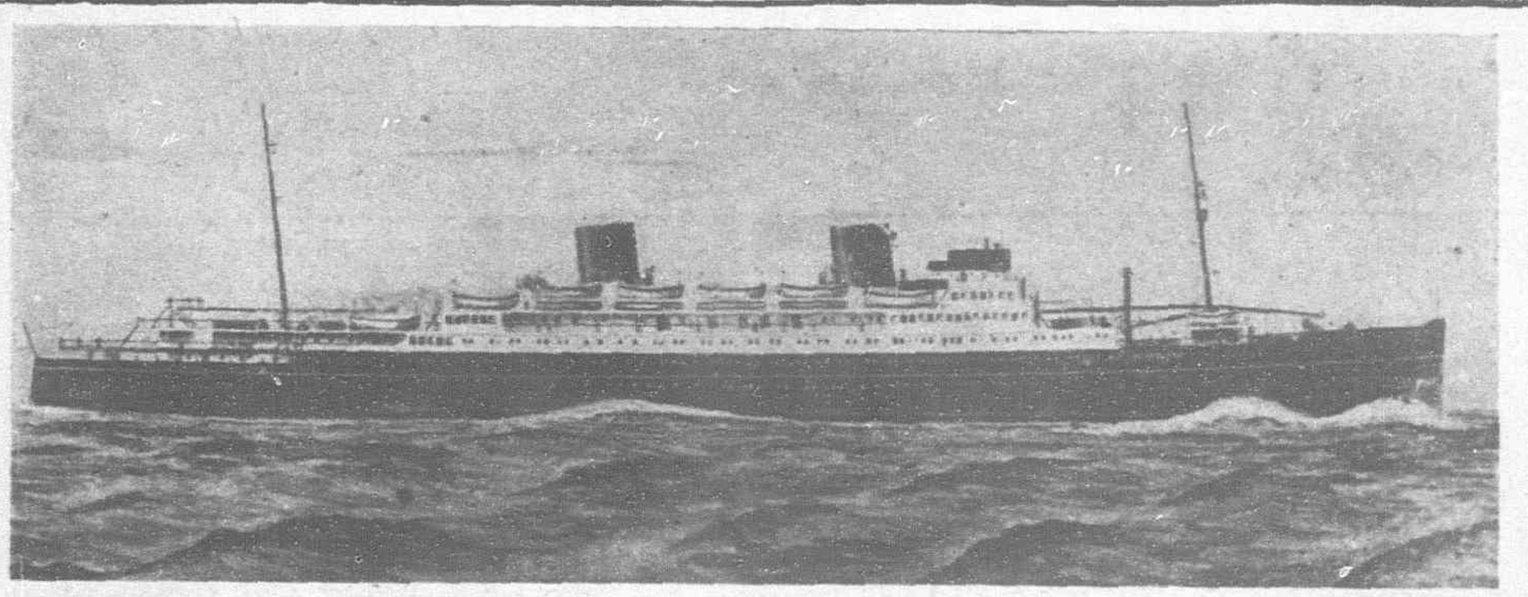
THE SOUTH MANCHURIA RAILWAY

NEW HO-TUNG ENGINEERING WORK-SHOP

Vol. XXIII May, 1927 No. 5

SHANGHAI, PEKING, TOKYO AND MANILA

# New Era Dawning in Trans-Pacific Travel



One of the Transcendent Trans-Pacific Trio ordered by the N. Y. K. Line to be commissioned in their Orient-California Fortnightly Service in 1929.

*Details of the Transcendent Trio:*

Quadruple Screw Motor-driven Passenger Liners.

| | | |
|---|---|---|
| Tonnage | ... ... ... ... ... | 16,500 gross tons, 22,000 displacement tons |
| Length | ... ... ... ... ... | 560 fee. |
| Speed | ... ... ... ... ... | 19 knots |

These vessels will embody the highest ideal of a passenger carrier and are expected to revolutionize the passenger traffic on the Pacific.

*Principal Passenger Services in operation:—*

**To North America**

Orient—California, Fortnightly Service.
Orient—Seattle Service, Fortnightly Sailings.

**To South America**

Orient—South American West Coast Service, approx. Monthly Sailing.
Orient—South American East Coast Service, approx. Monthly Service.

**To Europe**

Japan—Europe Fortnightly Service.

**To Australia**

Japan—Australia Monthly Service

**To Bombay**

Japan—Bombay Monthly Service.

**To Japan**

China—Japan Rapid Express Service, sailings every four days.
Tsingtao—Japan semi-monthly Service, etc., etc.

*For information, please apply to*

| **Shanghai** | **Tsingtao** | **Tientsin** | **Hongkong** |
|---|---|---|---|
| 31 The Bund | 20 Kuan Tau Road | K. Y. K. Line, French Concession | King's Building, 8, Connaught Road |

# N. Y. K. LINE

**Head Office: Yusen Building, Tokyo**

# The Far Eastern Review

ENGINEERING FINANCE COMMERCE

VOL. XXIII SHANGHAI, MAY, 1927 No. 5


# Britain's New Policy in China

## Sir Austin Chamberlain's Statement on the Second Nanking Note: Why the Powers could not Co-operate

## The Nanking Government's Opportunity

THE British policy in China has again taken a new turn in the form of Sir Austin Chamberlain's statement in the House of Commons with regard to the second Nanking note. Previous to this statement it was believed that in the event of the other Powers refusing to participate in a joint action against the Nanking Government, Great Britain would go in alone. It was fairly well known early in May that neither Japan or the United States were enthusiastic with regard to the second Nanking note.

Between the Nanking outrage and May 9, when Sir Austin made the statement referred to, Japan was faced with the most serious economic crisis in her history. Several banks were forced to shut their doors. One of the largest trading firms of the country went into bankruptcy and a moratorium was declared for a period of twenty days. Besides this economic crisis, a change of Cabinet took place in Japan, a new party coming into power with the usual political disturbances attendant upon such an event.

It was for a time believed that the tendency of this new party would be to support Great Britain in what is generally referred to as a strong action in China, but the internal problems of Japan were of such a character that no Ministry could afford to launch upon an expensive and what might turn out to be an unsuccessful venture without previously having solved Japan's internal problems. The Japanese policy, therefore, became one of "look and see." The Japanese Foreign Office adopted the view that this was not the time to make any change in Japan's attitude towards China and this view was apparently accepted and supported by the main body of the Japanese press.

### American Opinion

The first shock of the Nanking Incident outraged American public opinion to such an extent that it became more than likely that the United States would fully support Great Britain in the British Yangtze program, for whereas previously attacks in China had been limited to objection to Imperialism in general, now America's particular interest in China, namely, the position of the missionaries, was destroyed. The missionaries had been driven out of South China, their property had been seized, their homes had been looted and their schools, churches and hospitals turned into barracks for troops and into stables for horses. It had always been suggested that the United States would never seriously consider the China problem until the missionaries had become involved in the anti-foreign movement. Now they were more than involved. They were the target of all anti-foreigners. Even the Chinese Christians were unwilling that the missionary should remain in China on the same basis as before.

Nevertheless, American opinion could not be aroused to support an American program of reprisals and intervention. In the first place, the United States was at this moment concerned with the Mississipi floods, in comparison with which the Yangtze incident was of minor importance and in the second place, the China trade is still so small that there were few Americans with a direct interest in the continued presence in China of American citizens.

### Division Among the Missionaries

As to the missionaries, they themselves were divided in their appeals to the United States. Some of them were bitter and expressed opinions that would have been acceptable to the most "Die-hard" type of Briton in China. Others were ready to explain away and forgive the Chinese apparent antipathy towards the missionaries. Their appeal to America was largely that they did not care to have their Chinese Christian friends embarrassed by any acts of the American Government. These missionaries hope that the day will come when they will be able to return to China to resume their work and they appeal to the American people not to make it impossible for them the return.

Still others regarded the Nanking incident as a visitation, as punishment for their betrayal of the cause for which they have been sent. They feel that the special task of the missionary in China is evangelical and that whenever the missionary ceased to evangelize and devoted himself entirely to business administration, to such materialistic enterprises as the erection of buildings and the supervision of education, they were sacrificing their principal object, namely, the spreading of Christianity, for work which educated Chinese could do with equal ability. Their appeal was that America should not participate in any strong action against China as such an action might make it impossible for them ever to return to this country for evangelistic purposes.

The American business man therefore did not receive the support and co-operation of non-mercantile Americans in China. He was, as a matter of fact, left out in the cold. His resolutions fell upon ears that would not listen.

### The Nanking Government

Meanwhile, events had occured in China which completely changed the political scene. General Chiang Kai-shek not only broke with Hankow but he denounced the Hankow Government as Communistic and took the strongest steps to suppress Communism in his territory. No other general has ever so efficiently and so capably suppressed a subversive element in his territory as General Chiang Kai-shek suppressed the Communists in Shanghai. He rounded them up and crushed them unmercifully. Hundreds of Communists were killed in Shanghai and Communists headquarters and Labour Unions were closed throughout this territory. In a few days the huge revolutionary machine which Borodin had created was thrown out of gear and into the scrap heap in the hinterland of Shanghai. The days during the month of May which have been historically famous for their disturbances passed with hardly a tremor. Factories again resumed work and during the whole month

of May there has not been a single strike or lock-out in this area. The Nationalist Government attracted to itself such men as Dr. C. C. Wu and Dr. Wang Chung-wei and other brilliant and well-known anti-Communists.

As soon as the Nationalist Government was fairly well organized, it entered upon a military struggle with Hankow. It became evident that Hankow could not long endure and it was clear to the Powers that it was to their advantage that Hankow should be destroyed by a Chinese rather than a foreign force and that it was still more advantageous that that Chinese force should be within the Kuomintang rather than outside of it. It was then a question of judgment whether it would be wiser to attack both Hankow and Nanking or to attack Hankow alone or to wait until Nanking had destroyed Hankow and then to deal with whatever element arose out of this destruction. Foreigners in China, particularly British and Americans, felt that the Powers should take some action lest the Nanking incident be repeated, but the Governments realized that strong action of this nature might become a valuable weapon in the hands of the Communists and they therefore preferred to continue the policy of giving China still another chance before they took such steps as would involve occupation for a long period of Chinese territory.

Sir Austin Chamberlain's statement, which we are giving in full, clearly expresses the general British, American and Japanese Governmental point of view which has to a very large extent been attacked by the foreign press in China and which does not meet with the approval of the foreign mercantile communities here but which has been received by Kuomintang leaders as an act of statesmanship. They believe that Sir Austin's statements and Sir Miles Lampson's visit to Shanghai may still save the situation in China for British trade and British interests. The Nationalist Government particularly had been hopeful that Britain would take some such step as their program included the opening of their territory to British trade and to foreign missionaries under adequate guarantees for the protection of life and property. Yet, as a political group they dared not announce their plans with regard to this until they knew exactly what the Powers would do, as they could not risk being accused by the Communists and by their own supporters of being "running dogs" of foreign imperialism. Now that it is certain that there will be no military or naval attack on Nanking by the foreign forces, the Nationalist Government has every opportunity of proving its ability to protect foreign life and property, to encourage trade and to maintain law and order within its boundaries. There is no reason to believe that if the Nationalist Government at Nanking is able to support itself against the Chinese military forces which are at present contesting with it for the control of its territory, that they will not provide such a government as existed in Canton during 1925 and part of 1926, when for the first time in China there was an efficient, responsible and effective Government, one with which Great Britain, at a time when British goods and British individuals were being boycotted, was willing to enter into negotiations.

Sir Austin Chamberlain's statement as transmitted by *Reuter's* fully explains the British Governmental view of the cureent situation in China.

## Sir Austin Chamberlain's Statement

"The Foreign Secretary said that the Powers had been discussing further action in view of the unsatisfactory nature of Mr. Chen's reply when events in the Yangtze region entirely changed the position. Within four days of the date of Mr. Chen's reply a united Government of South China no longer existed.

"Mr. Chen and his Notes, Sir Austen Chamberlain continued, represented little more than his personal opinion. The tools of the policy which had culminated in the Nanking outrages were unpaid Nationalist soldiery and city mobs, but the organization and driving force had been borrowed, directly or indirectly, from the Third International. This policy, Sir Austen added, by March was directed against General Chiang Kai-shek.

"The organized side of the Nanking outrages, the Foreign Secretary declared, appeared to have been an attempt to embroil General Chiang Kai-shek with the foreign Powers. It seemed two months ago that the Southern Party and the Nationalist Armies would sweep China from the South to the North. Nanking, perhaps, had wrecked this altogether. In view of the momentous developments due to the discrediting of Communists and their foreign advisers in the eyes of China, the question of punishment for the Nanking outrages had assumed an entirely new aspect. The real offenders, namely, Communist agitators, had been punished by the Nationalists with a severity and effectiveness of which no foreign Power could have been capable.

"The Nationalist Government at Hankow, the Foreign Secretary went on, had lost its dominating position and at present it was little more than the shadow of a name. Mr. Chen's Notes had received an answer in the practical disappearance of the power he affected to represent : he had been cut off by the tide of events in a ruined and terror-stricken Hankow the Foreign Minister of a Government which existed in name only. Those in the high places responsible for the Nanking outrages, he added, had been punished with a promptitude and completeness unusual in human affairs."

Sir Austen Chamberlain said that whatever Government emerged from the present confusion north and south of the Yangtze would be held responsible for the outrages on British nationals and compensation and reparation would be demanded.

"The one desire of His Majesty's Government was that a Government should arise which would renounce the policy of anti-foreign agitation and misrepresentation which had ruined its predecessor and shoulder its responsibilities fairly and squarely in liquidating the past and building up a better future on a reasonable basis of Treaty revision. It was too early to predict the strength or policy of the new Nationalist Government being formed at Nanking, but he had no hesitation in saying that the Powers' moderation in dealing with the Nanking incident was largely inspired by a desire not to embarrass this or any other new Government in the task of introducing order in the territory under its control."

Sir Austen Chamberlain declared that His Majesty's Government had very carefully considered the question of reoccupying the ex-British Concession at Hankow : the logic and justice of such a course had at fisrt strongly appealed to the Government. The signing of the Hankow Agreement, he said, was deliberately designed by His Majesty's Government as a sign of the friendly attitude of Great Britain towards the Chinese Nationalist Government and Nationalist aspirations. Britain would be amply justified in reoccupying the Concession : the Nationalist Government had neither observed the Agreement, nor had it attempted to reciprocate the friendly attitude of His Majesty's Government.

"Referring to the incidents at Chinkiang and at Nanking, the evacuation of all British nationals from up-country districts and many Yangtze towns and the closing of Consulates, Sir Austen Chamberlain said : "We have the means at hand of reoccupying the Concession and regarding the Agreement cancelled by the Nationalists' own act, but after full consideration His Majesty's Government have decided not to take this step now and hope that it may not be forced on them."

"The Foreign Secretary emphasized that the Hankow Agreement had not been signed for the exigencies of the moment, but in view of Britain's whole future policy in China. The world in general and all Chinese were in a position to appreciate its significance and generosity and to recognize it as a tangible proof of the sincerity of Britain's desire to revise the Treaties in the broadest and most liberal spirit when Chinese conditions permitted. His Majesty's Government was unwilling, even under the provocation it had received, to abandon the hope that this friendly policy would at present evoke an equally and friendly response from a Chinese Government freed from foreign domination.

"Taking all the facts of the future and past into consideration." Sir Austen Chamberlain declared, "we have decided that to present an application for sanctions for the Nanking outrages or for failure to observe the conditions of the Hankow Agreement is inexpedient—however fully justified." He believed that similar reasoning had led the other interested Governments to a like conclusion, and added : "The Government, therefore, do not propose to address a futher Note to Mr. Chen." His Majesty's Government, the Foreign Secretary said, had informed the other interested powers of this intention, adding that the British Government reserved full liberty of action regarding the future, particularly in respect to any further outrages which may be perpetrated on the British flag, British nationals and British property. (Ministerial cheers).

Replying to a question arising from his statement, Sir Austen Chamberlain said that he was loth to ask the heavily-burdened British taxpayer to compensate British victims until a more stable Chinese Government existed."

# The Anti-Communist Government in Nanking

## The Elimination of the Russian Influence from the Kuomintang; New Forces in Government Circles; The Problem of Organization and Application of Western Methods As Well as Ideas

## The Intellectuals and the Bourgeoisie at Last Become Interested

*By George E. Sokolsky*

FEW foreigners in China have an adequate conception of the meaning of the organization of the Nanking Government because they conceive all institutions and movements in China on the basis of their experience with Tuchunism and their dislike for the Communistic phases of Nationalism. Nevertheless, it is necessary to note every change on China's political horizon not as something isolated and exceptional, but as inevitable historical movements toward a single goal. It may be possible, it is more than likely, that most of the current political experiments in China will fail for obvious reasons, but in the circumstances, failure cannot be a deterrent to experimentation. China must go on squabbling, fighting, struggling, failing until a solution is found to her internal problems, in the form of a workable system of government which will bring peace to the masses of the people, will provide them with an adequate return for the taxes they pay, protect life and property, open the arteries of trade and civilization so that progress may be made by a sixth of the population of the universe. The sheer territorial size of China and the numbers of human beings found in that geographical expression impose upon those who are attempting Government in China, a responsibility greater than that which is facing statesmen anywhere else in the world.

To meet this responsibility fittingly would require an experience in government and a knowledge of the mechanism of organization which, it is safe to say, no one in China possesses. It may or it may not be a reflection upon the Chinese people that they lack that experience, but when the facts are analyzed it is found that Organization achieved its greatest development in the United States and was a product of a definite economic need which has existed nowhere else, namely the speedy economic development of a continent. Russia and China, as modern concepts, require the application of these ideas and methods of organization, but in the past, under the reactionary intellectual *milieu* of Sung Confucianism, there was a resistance to and a hatred for Western ideas and western methods, which has not altogether broken down in half a century of direct contact with the best elements of western civilization. Whether it was the conceit of an ancient civilization or a normal distrust for new ideas and things, matters little in an analysis of the results rather than the causes of this resistance. But the fact remains that whereas China had, during the centuries, absorbed all forms of civilization which marched overland from the Mediterranean through the heart of Asia, across Great Walls to Changan and Loyang, China has resisted with a spiritual wall more formidable than all the bricks and mortar in that huge barrier to the North, the western influences which came by the sea in merchant vessels and gun-boats, in the form of trader and missionary. Italians, Arabs, Jews, Persians, Greeks, all became part of China's intellectual heritage, but not the French, British, Italians, and Americans who knocked at Canton's door and were unwelcomed.

Sun Yat-sen

### Westernism from Within

The Kuomintang was the only political party which frankly avowed westernism. It is true that the Chinputang philosophers as well as the independent intellectuals of the Peking National University were western in idealism although not always in method, but it was Dr. Sun Yat-sen, who thought, naturally and without effort, in western terms and who attempted, in his impractical manner, the application of western methods to China. Now, there are some persons both Chinese and foreign, who are opposed to Dr. Sun and to the Kuomintang, because they believe that it would have been more advantageous for China and the western nations had China never known western concepts and methods. Such conclusions can be ignored as contemptible because they represent a selfish unwillingness to meet progressive tendencies among so-called backward peoples frankly and to compete with these rising peoples on a fair basis of letting the best man win. In their fears on the subject, they infer that in an open competition between peoples, their people, their type, their characteristics would lose, which is not necessarily a true nor a laudable view. Cowardice is always disgusting.

The fact then has to stand that even before the Revolution

of 1911, the Tungmenwei, predecessor of the Kuomintang and all the influences which Dr. Sun represented, were western in concept, in idea and in method. As Dr. Sun was more familiar with the United States than with any other country, he naturally incorporated American ideas in his scheme and this was to a large extent supported by the American returned student who played so significant a part in the first year of the Revolution.

## The Inferiority Complex

Dr. Sun's failure and the failure of the American returned student, lay not so much in inexperience as in their inability and perhaps in some respects, their unwilling to recognize Tuchunism as a return to Feudalism and as one of the most dastardly obscurantist movements in history. This unwillingness, at the time, was largely the result of an inferiority complex, of a shame at frankly stating to the world that second and third rate military men, shrivelled-up opium smokers, employers of soldiers but themselves seragliolizards and ignorant coolies had emerged as a result of the failure of the first year of the Republic and had occupied the authority of Government. Instead of facing this with utter frankness, the Kuomintang members frittered away wonderful years of opportunity in alliances and counter-alliances with these very Tuchuns, sometimes becoming part of a league with Kuangsi militarists, other times joining with the Anfu Club and at still other times, even flirting with the most feudal of Tuchunish organizations, the Chihli Party. The fact was that the Kuomintang, although it regarded itself as a people's movement and although it contained within itself the germ of the only possible people's movement in China, lacked the statesmanship and the courage to appeal to the masses and to risk association with the masses in a popular denunciation of the power of Tuchunism.

## The Students Movement

It was the Student Movement of 1919 which reorientated the Kuomintang. Here was a spontaneous uprising of students, merchants, shop-keepers, sing-song girls, rickshaw coolies, bankers, laborers, professors, railway workers—every class in the community. Every politician realized the potency of such an effort and every party attempted to achieve an alliance with the students. But the Student Movement was successful largely because it was spontaneous and unorganized. It was a mass reaction to a definite political problem and did not represent any expenditure of party funds or previous organizations.

It spent itself the moment its deliberate object was achieved. Dr. Sun Yat-sen afterwards organized propaganda agencies to bring the students into his party. He saw in them a practical link between the Kuomintang and the masses. He sensed the public confidence in the ordinary boy and girl student. He realized their sentimental power over merchant and laborer. He envisaged a future for his party, which was then, in 1920, at its lowest ebb. For three years this propaganda movement continued quietly but effectively. It was interesting at the time to watch how students educated in China easily became votaries of this movement for westernization, but how Anglo-Saxon-trained students, returned students from Britain and America, remained aloof preferring to spend their days in the less dangerous pastimes of the restaurant and the card table. Furthermore, it was to be noted, that during those three years, the most important intellectual group in the land, the professors of the Peking National University with only two or three exceptions, ignored a movement which they had initiated.

Perhaps the fault lay with the primitive organization methods the Kuomintang at this time. The thing was too easy. Funds were readily obtainable from Chinese in the United States and in the British and Dutch colonies of Asia—millions were poured into the party coffers in this way. Canton was sporadically an easy seat of Government. Dr. Sun could think westernly, but his life-experience, the character of his own efforts, made him the least suitable man to organize and make coherent a great mass movement for so huge a territory as China, He was after all, an individualist with a social concept, but he could not merge himself into an organization and became its obedient leader. The Kuomintang was surfeited with individualists, with great names who were moving undisciplined across the political scene in China.

## Borodin's Influence

The advent of Michael Borodin provided the Kuomintang with its greatest need at the moment—modern, western organization. For the organization of the Communist Party of Russia was the application of efficiency methods of American commercial and industrial organizations to the ideology of Karl Marx. The reorganized Kuomintang after 1923 became exactly that but the ideology was confused by an admixture of Sunyatsenism and Marxism, the latter ideal being altogether unsuited and unnecessary from the standpoint of China's social and economic stature. From 1923 to 1926 the Party, held together in a discipline by this organization, made greater progress territorially, politically and in its effect upon the masses, than during the entire course of its previous history. It ceased to be an aggregation of clever individualists and became a Party, a mass organization with a central discipline. The progress was even greater after Dr. Sun's death than during his life, because he could never be subordinated entirely to party control. The Russians from that standpoint performed an important service to the Kuomintang.

But unfortunately for the party and for China, the Russians were not as anxious to assist China to national greatness as they were concerned with the use of the Kuomintang in Soviet Russia's private struggle against Great Britain, Japan and the United States. The result was that they accelerated the speed of the Kuomintang's progress far beyond its motive power; they threw out of party all genuinely stabilizing forces and leadership; and finally, they created within the party, a sinister, subversive, un-Chinese institution, the Communist Part of China, which boring from within, aimed at the destruction of the Kuomintang at the moment of military victory, in the hope of substituting the Communist Party of China for the Kuomintang as the custodian of the power and authority engendered by the mass movement which had arisen from the ashes of Dr. Sun's leadership. This was the evil service done the Kuomintang by the Russians.

## The Vitality of the Kuomintang

The substantial character of the Kuomintang, its power to resist external oppression, its ability to accept defeat rather than compromise on basic issues and the control of public opinion over the actions of its leaders, definitely appear in the Nanking revolt against the Hankow Communist Government. It is not at all beyond the possibility of political realism, that Tsai Yuan-pei, Wu Tze-hui, Hu Han-ming, Li Shih-tseng, Chang Ching-kiang and General Chiang Kai-shek might have accepted the opportunity of Russian subventions and Russian co-operation after the Yangtze victories and continued to obey the dictates of the Russian dominated Central Executive Committee of the Hankow Government. Of these six men, three, Tsai Yuen-pei, Wu Tze-hui and Li Shih-tsen may be regarded as without peers in national prestige because of the hold they have upon the intellectuals of the country. Hu Han-ming is a local Kuomintang leader of outstanding reputation within the party but not so important outside of it. Chiang Ching-kiang was Chairman of the Central Executive of the Party and has a working knowledge of the control of party machinery. General Chiang Kai-shek, who is the commander-in-chief of the Nationalist Army, is not altogether without a spark of opportunism and is the ostensable leader of the Nanking group. The three intellectuals could not have joined with the Russians, but the three practical men, have at times, been associated with Borodin and might have continued in such association.

The fact is, however, that no really practical politician within the Kuomintang could remain attached to the Russian standard in face of the rising opposition to Soviet dominance by the rank and file of the party. Foreign domination has ever been resented by the Kuomintang as a national problem. Could the party then accept Russian domination of its own machinery? Since the death of Dr. Sun Yat-sen there have been intermittent revolts against the Russian influence in the Kuomintang. The Western Hill Conference, the Right Wing headquarters at 44 Route Vallon in Shanghai, the anti-Communist Movement in March 1926, the Party Convention on May 15, 1926, the resistance to the establishment of a National capital at Hankow, the separation of the army control from the center of party influence and finally the revolt of the army and the intellectuals and the setting up of an anti-Communist Government at Nanking fully supported by an anti-Communist public opinion in Kiangsu, Chekiang and Kuangtung, mark the progress of this anti-Russian movement within the party. Measured in terms of politics, the Russians had diverted the party from

Sunyatsenism, which is an agency for the regeneration of China, to an aggressive, purely anti-foreign movement in the interests of a foreign Power, Soviet Russia. And the wonder of it is that the party had sufficient vitality to recede from this diversion in the face of an actual war, at the moment of its greatest victory and the possibility of experiencing, because of the internal recession, a crushing defeat at the hands of the Tuchuns.

Now, the future has to be faced with heart-breaking reality. The Kuomintang had the sympathy of intelligent and liberal-minded persons the world over in 1925 : to-day, it is faced with the stupidity of Hankow and the brutality of the Nanking Incident. It is called upon to explain away the Communist complication and to apologize for their sheer vandalism. It has split its own strength into several parts and has undermined its international position. It has involved China in a form of foreign intervention and is faced in the territory under its control by foreign troops and gun-boats. Although it has, for the first time perhaps in Chinsee history, been able to co-opt the services of the bankers to the financial organization of the Government on the basis of a determination that that Government should not fail, there is no time, in view of the necessity to defend itself from enemies on all sides, to put any financial system into operation. Although, it has been able to attract to itself the outstanding intellectual forces of the land, it has no time to utilize them for the development of a modern, effective Government. If the Tuchuns still possess any fighting ability, any power, any capacity, this Government may fail and be forced to return to Canton to commence China's revolution toward westernism all over again. But failure or success are really immaterial from the standpoint that the non-Kuomintang elements have been purged from the party and that the Kuomintang party itself has been able to survive, such as it were, a tuberculuar attack at its vitality. The historical importance of Nanking Government is that it indicates that the spark of vitality is still alive in Chinese Nationalism, that Russian Communism has been able to affect but not to destroy it.

# The Curious Case of Mr. J. B. Powell

THE *Far Eastern Review* has always regarded itself as a journal which has ever sought the best interests of China. For a decade and a half *The Far Eastern Review* and its editor, Mr. George Bronson Rea, maintained almost alone, in the English language press, the struggle for Chinese national interests through its columns. At the time of the Twenty-one Demands or whenever China was imperiled it was in *The Far Eastern Review* that the Chinese view and particularly the attitude of the Kuomintang party and of Dr. Sun Yat-sen found a sympathetic presentation of their case.

It was during the Versailles Conference that the editor and publisher of *The Far Eastern Review*, Mr. George Bronson Rea, revised his attitude towards the Chinese question, largely as a result of a conviction that China's policy of playing off one Power against the other was involving China in serious difficulties with all the Powers. Mr. Rea, in particular, reached the conclusion that the best interest of China and of world peace would be served if China and Japan dropped an enmity which had been due to a colossal misinterpretation of Japan's position, and entered upon an era of co-operation and friendship. He particularly appealed to the American people to support such a program and he denounced those Americans in Shanghai who were instigating and giving assistance to anti-Japanese movements, which at that time were taking on the character of strikes in Japanese industries and a nation-wide boycott of Japanese goods.

## The American Chamber of Commerce

Curiously it was about this time that the Americans in Shanghai organized the American Chamber of Commerce to represent them and Mr. Thomas Millard and Mr. J. B. Powell started "Millard's Review" which adopted a program diametrically opposite to that of *The Far Eastern Review*. Mr. Powell was, at that time, the leading spirit in the American Chamber of Commerce and he, in due course, became its Secretary and was to a very large extent responsible for its policies and its activities. He and the group in control of the Chamber became embittered against Mr. Rea, attacked him as anti-American and conducted a wide-spread propaganda against him.

Any other Far Eastern publication would have been destroyed as a result of such a campaign, but the fact that *The Far Eastern Review* was the first publication of its type in China and the loyalty of good-feeling toward it of many of the manufacturers of engineering material in the United States, Great Britain and Japan saved the paper from destruction. No attempt was made to expel Mr. Rea from the American Chamber of Commerce, because to do that would have required an open hearing and it would have been necessary to bring proof that Mr. Rea's change of viewpoint and his demand for fairness, involved moral turpitude. The activities against Mr. Rea and *The Far Eastern Review* were therefore secret and involved a considerable amount of dishonorable intrigue even to the extent of threatening Mr. Rea with an expensive libel suit, which never was brought to a head.

The hope of those who were at that time dominant in the American Chamber of Commerce was that they could covertly and by a sort of *fascisti* action enforce their will upon the publisher of an American journal in China whose views, at the moment, differed from those controlling the machinery of the Chamber.

## A New Line-Up

Now the tables are turned. The entire American mercantile community in China holds the same view that was then advocated by Mr. George Bronson Rea in the columns of *The Far Eastern Review*. Resolutions have been passed by the American Chamber of Commerce demanding stern and drastic retaliation for the loss of life and property by American citizens in China. The Chamber of Commerce has publicly supported the Shanghai Municipal Council and has expressed its approval of the British Defence Forces in China. It has not been sympathetically inclined towards the attitude of the American Government in refusing to agree to joint action with Great Britain and Japan against the Hankow Communist Government.

Mr. J. B. Powell opposed the Chamber's view. About two years ago, he ceased to be Secretary of the American Chamber of Commerce and gradually he has been increasingly less in support of the attitude and ideals of the Chamber. Holding no office in the Chamber and being the editor and publisher of his own publication he had a right to follow his own program, but there were those who held that because of the close affiliation between the Chamber of Commerce and Mr. J. B. Powell during the past decade it was impossible to disassociate them. In fact, many persons still believed that Mr. Powell was the dominating personality in the American Chamber of Commerce.

The quarrel between the Chamber and Mr. Powell reached its climax because of a series of articles published in his weekly paper attacking the British Defence Forces in China and particularly the Shanghai Municipal Council, of which the Chairman, Mr. Sterling Fessenden, is an American. These attacks were of such a nature that they stirred considerable animosity between Americans and British in Shanghai and elsewhere in China and they gave to the Chinese an impression of a division of ideas among the foreigners in Shanghai.

The American Chamber of Commerce, as representing the views of American business men in this city, was at this time actively co-operating with other foreigners, particularly British mercantile groups and was supporting with all the influence at its command the Shanghai Municipal Council and the British Defence Forces. The feeling in the Chamber, then, was that there should be a clear-cut

and open separation between the American Chamber of Commerce and Mr. Powell. They desired to make it known beyond the possibility of a misunderstanding that the American Chamber of Commerce was not responsible for and in no way supported the views expressed by Mr. Powell in his weekly newspaper. To accomplish this, at the annual meeting the then Chairman of the Chamber, Mr. F. F. Fairman, Manager in China of Dodge and Seymour, introduced a resolution as follows :—

## The Resolution

*" I am instructed by the Board of Directors to introduce the following resolution :*

*" Whereas it is the opinion of the American Chamber of Commerce, in annual meeting assembled that having regard to the adverse criticism published in the recent issues of " The China Weekly Review " concerning measure of local defence together with the general tone of editorial comment on questions which concern the lives and property and general welfare of American Citizens in Shanghai, this Chamber emphatically declares that the present policy of " The China Weekly Review " appears to be in direct opposition to the opinions and views as held by the members of the Chamber on these matters of such serious and supreme importance, thereby lending aid to disruptive instead of constructive elements.*

*" Therefore be it resolved that " The China Weekly Review " is hereby requested to resign its membership in this Chamber."*

This resolution not only states the Chamber's attitude towards the general question in China but it divorces itself from an individual and a newspaper which had for some years been recognized as its official organ. It declared definitely that neither Mr. Powell nor the *China Weekly Review* represented American opinion in Shanghai and that hereafter Mr. Powell wrote and spoke as an individual and not as the spokesman of American opinion.

The vote on the resolution was almost unanimous the only opponent to it being Mr. George E. Sokolsky, Associate Editor of the *Far Eastern Review*, who, although he agreed that the Chamber had a right to disassociate itself from Mr. Powell and his publication, felt that an important principle was involved in the request for the resignation of *The China Weekly Review* from the American Chamber of Commerce. His attitude was that again an action was being taken similar to that which Mr. Powell and the Chamber had taken against Mr. George Bronson Rea, when his opinions differed from those of the Chamber. He felt that the Chamber was within its rights in stating that they disagreed with the opinions of Mr. Powell or with any other member of the Chamber whose views were different from and in opposition to the opinion of the Chamber, but when it went further and disciplined an American publication for its views it was covertly establishing a censorship which might at some time be extended to other American publications.

Furthermore, Mr. Sokolsky felt that if Mr. Powell's views were dishonestly arrived at, there should have been a hearing at which he had an opportunity to defend himself, and if found guilty, he should have been expelled from the Chamber, for the request for his resignation did not accomplish anything more than a severe reprimand, as Mr. Powell eventually did not resign from the Chamber.

## The Swing of the Pendulum

It is necessary to record this event because it indicates more than anything else the swinging of the pendulum in The Far Eastern points of view. The Americans have ever been the supporters of democracy in China. They have always shown a tremendous sympathy for the party of revolution, the Kuomintang. The American trade has amounted to comparatively little in the total economy of the United States, but the American missions have spent approximately Gold $15,000,000 a year in China on education, religion and healing. When anti-foreign movements in China were aimed at Japan and then Great Britain the average American business man enjoyed the spectacle and more often than not aided and supported the Chinese in their attitude.

The American missionary particularly came to hold that in his support of Chinese national aspirations he had to be anti-Japanese and anti-British. He did not see that these same nationalistic aspirations would, one day, apply to Americans. In due course, anti-foreignism actually spread to Americans. Not only were the American merchants told that they were not wanted but the American missionaries, who had never done a single thing to harm China, who had always gone out of their way to serve the Chinese people and who had antagonized the British and Japanese in their efforts to assist their nationalistic struggles, were also driven out of the country.

It was at that moment that the American business man in China realized that he had made a mistake, that his direct interests lay in active co-operation with other foreign merchants and industries, that although he must not attempt to reduce China to a European colony, he nevertheless was bound to co-operate with other foreigners of his class in the protection of ordinary rights of trade and travel, which were guaranteed to him by the Treaties between his country and China.

**There have been times when the American Chamber of Commerce did not support such a view. To-day it is their policy. To-day the Chamber differs almost not at all in its general view point from British and Japanese organizations in China.**

We feel, however, that without exception the important men of such organizations no longer believe that anything can be accomplished in China on the general basis of maintaining the *status quo of* 80 years ago, but that there is everywhere a hope that China will work out speedily and successfully a political system which will give to China full and complete sovereignty and will make it possible to revise the Treaties to which Chinese take such exception and at the same time will provide for adequate protection for foreign lives and property in China. Under such political conditions, China is bound to settle down to peace and reconstruction and under such conditions foreign trade is bound to increase tremendously.

# The China Trade Act

THE report that Liggett & Myers has organized a subsidiary under the laws of Delaware to handle its cigarette and tobacco business in China, makes us wonder what is the matter with the China Trade Act. Liggett & Myers have been very active in the Chinese field and built up a profitable trade in its various lines and grades. Virtually all the cigarettes produced by the company are already on the Chinese market, the business being handled by the parent concern. It is now proposed by the formation of a new subsidiary to make the Chinese business a separate unit and to push aggressively its sales in this field. But, why Delaware, when the China Trade Act was designed and passed by Congress with the applause of every American in China.

* * *

THE FAR EASTERN REVIEW refused to support the campaign for the passage of the China Trade Act. We adhered to the opinion that such a law not only constituted a direct infringement of China's sovereignty but violated the basic principle of America's traditional policy towards China. The multiplication of foreign tax-exempted corporations operating under the protection of extraterritoriality, would ultimately drain the financial resources of China into enterprises outside the jurisdiction of the Chinese Government and deprive its treasury of a legitimate and much needed source of revenue. We contended, despite all the perfectly good arguments advanced in favor of the law, that there is no difference in principle between stealing a Chinese province and depriving the government of that country of a legitimate source of revenue.

* * *

THE FAR EASTERN REVIEW stood alone in defense of a principle that struck at the very roots of China's sovereignty. Even the Peking Government and its representative in Washington, carried away by the glittering promise of huge American investments in China, endorsed a measure, which, in effect, handed over the exploitation of the national resources to foreign corporations over which it could exercise no control. Fortunately for America, the China Trade Act failed in its object. Had American capital flowed into the country in response to the invitation extended by this law, we would now find ourselves in a worse position than the British or the Japanese.

G. B. R.

# American Capital, Chinese Labor and Philippine Lands!

AN indication of what is in store for Americans in the Philippines when China settles down to draft new treaties with the foreign powers, is seen in an article appearing in the *New York Herald-Tribune* under date of February 20, written by Mr. Roy Bennett from Manila. Mr. Bennett starts off by saying; "Chinese in the Philippines have adopted a new slogan of "American capital, Chinese labor and Filipino lands." They claim that a combination of the three would multiply the wealth of Islands tenfold."

While General Wood is urging more strict enforcement of the laws against Chinese emigration with the enthusiastic support of all Filipinos except those who profit by their evasion, the Chinese Consul General at Manila, Mr. Lingoh Wang, is completing a survey of the islands for his government and has come out for the opening of the doors to the Chinese as the solution to their economic problems.

That the Chinese have the whip-hand and can carry through their plans should they determine to adopt the same methods in the Philippines which have carried them to success in China, is apparent from the brief resume of their position as outlined by Mr. Bennett. He says;

The Chinese is the middleman of the Philippines. He buys from the American and English importing houses and sells to the Filipino; and buys raw products from the Filipino and sells to the big exporters. Approximately 90 per cent. of this business is in his hands.

Through it he has a strangle hold upon the natives, and now is seriously threatening the position of the large foreign houses. Two years ago riots against the Chinese, riots such as have occurred regularly for the last 200 years, were stopped when the Chinese storekeepers boarded up their small shops and refused to open for business. The Filipinos literally were starved into peace by lack of any place to purchase the necessaries of life.

Of late years the Chinese merchants have encroached more and more upon the business of the foreign import-export houses. A 1½ per cent cumulative sales tax imposed by the government on every transaction has greatly aided this movement, as it fosters direct exportation by the first buyer of produce.

This has been particularly in evidence in the hemp market, where, within the last three months, one Chinese house has crept from a lowly position to second place in the list of hemp exporters.

Business men here are agreed that in the event of independence the Filipinos have more to fear from economic domination by the Chinese than political domination by any foreign power.

It is true, however, that the Chinese here make excellent citizens. They are, as the consul puts it, "too much engrossed in trade to pay attention to politics," and there is complete lack of interest in the anti-foreign feeling which agitates China.

They intermarry with the Filipinos on an enormous scale. Children of such marriages, which usually are prolific, are Filipinos at heart. This is true of all children born of alliances between Filipinos and foreigners. The Chinese-Filipino child inherits many of the qualities of both races, but particularly the cleverness and thrift of the Chinese parent.

There is no doubt that the Chinese would welcome an opportunity to invade the Philippines in large numbers. At present, in spite of strict laws against them, 2,000 a month enter openly by means of forged papers and forfeiting of bonds. Two steamers operate regularly between Manila and south China ports bringing them in.

Countless others take advantage of the Philippine coast line, which is as long, as that of the United States, to land and lose themselves in the population. This is easily accomplished.

Taken by and large, it would appear that the Chinese cry for "American capital Chinese labor and Filipino lands" is in a fair way to be realized if the islands ever get the American capital.

The mere recital of these facts conveys to the intelligent observer its own warning. It may be true that the Chinese in the Philippines are too much engrossed in trade to pay attention to politics. The same truth holds equally good in China. But with 2,000 or more Cantonese bootlegging into the Promised Land every month, in defiance of the American exclusion laws, it is easy enough for radical emissaries to follow the same route and put the screws on their more pacific countrymen. If, under this pressure the Chinese merchants in the Philippines should resort to a boycott of American goods or close the doors of their shops indefinitely as a protest against the American Exclusion Law as applied to the Islands, it would soon awaken Americans and Filipinos to a realization of what they are up against. And, unless we are greatly mistaken, this is exactly what the Chinese Consul General in Manila, acting under instructions from his government, is leading up to. When the Soviet and its Cantonese allies gets through with the British in China, the chances are ten to one that they will turn their attention to the next near-by vulnerable point in the armor of "Western imperialism." Americans who fail to heed the hand-writing on the wall and believe they can escape the impact of the Soviet drive against the "capitalistic system" are fit inmates for the nearest lunatic asylum.

**Major-General Leonard Wood**

# Justice to the Asiatic

## U.S. Supreme Court and Los Angeles Chamber of Commerce Swat Anti-Japanese Legislation

*By George Bronson Rea*

ANTI-JAPANESE Legislation in America is apparently a thing of the past. The wheels of justice move slowly and little by little discriminatory measures are being declared unconstitutional. The decision of the United States Supreme Court to the effect that the Pearl Harbor Oil Storage Depot was erected without authorization from Congress and is therefore an illegal act should go a long ways towards proving to the people of Japan that real American sentiment is not hostile to their country.

### Hawaiian School Law Unconstitutional

The United States Supreme Court has once more by a unanimous decision contributed to American-Japanese amity by upholding the freedom of education and the right of Japanese resident in Hawaii to maintain schools at their own expense for the education of their children. By an act passed in 1920, the Hawaiian Legislature subjected these Japanese language schools to the supervision of the department of education, limited their sessions to one hour in the afternoon six days in the week and required that the teachers should be proficient in the English language and in knowledge of American history and institutions. The curricula and text books in these schools were limited to those approved by the territorial authorities. The object of the law was to lessen an influence which was felt to be an obstacle to the Americanization of children born of Japanese parents residing in the Islands.

The Japanese comprise 40 per cent. of Hawaiian population outnumbering the Americans and Europeans nearly 3½ to 1. About three-fifths of these Japanese are Americans citizens, having been born in the territory. The remainder are natives of Japan. Together they furnish more than half the entire school population of Hawaii outnumbering the Americans and Europeans about 15 to 1. Only 2,000 of the 58,000 school children are of American stock, the remainder in order of numbers being as follows ; Japanese, Filipinos, Portugese, Chinese, Hawaiian.

The law, on its passage, was challenged by the Japanese and carried through the courts to the highest tribunal at Washington, whose unanimous decision declaring the law unconstitutional is a legal victory for the Japanese residents of the Islands. Aside from being a sound interpretation of the organic law, it is a highly helpful ruling. As the *Brooklyn Eagle* points out ; " If the Japanese seem a menace in Hawaii, the way to make them a real menace is to persecute them with manifestly irritating and needless legislation in the creation of which they have no representation."

### Anti-Japanese Fishing Law

The labor element in California, notorious as the most rabid and unreasonable anti-Asiatic body on the world is once more trying to persecute the Japanese through the passage of another discriminatory law. Fortunately, for the preservation of friendly relations with Japan the State of California is not dominated at this time by the politicians of San Francisco. The Los Angeles district has assumed the industrial leadership not only of the state but of the entire Pacific Coast and will not tolerate activities endangering its prosperity and development. The rapid growth of a vast industrial centre in the Southland, directed by broad-minded Eastern and Middle Western capitalists has created a new power in the state that will brook no interference on the part of petty political leaders catering to the labor vote of the San Francisco Bay district.

Early this year, Representative Hornblower of San Francisco, introduced a bill in the State Legislature forbidding fishing in state waters by aliens inelegible to citizenship. This measure is said to be similar to laws in force for some time in Washington, Oregon and British Columbia, though in California it hits and is intended to hit, the Japanese who practically control the fishing interests at San Pedro, Monterey and other coastal points in the state.

### Importance of Japanese Interests

Some idea of the value of the fishing industry under control of the Japanese at San Pedro alone, is seen in the fact that the port of Los Angeles has displaced Boston as the leading fish-handling centre of the United States. The volume of the fish caught in the surrounding waters and brought into the harbor in a year amounts to 160,000,000 pounds. The various kinds of fish caught are among the best known of all food fish which has resulted in the establishment of a large and rapidly expanding fish canning industry, which, in itself, takes approximately eighty per cent. of all the fish brought in. These plants handle and can sardines, tuna, albacore and many other species of highly desirable food fish as well as manufacturing fish meal and other by-products from non-edible fish.

### Sardine Centre of the World

Los Angeles now surpasses all other parts of the world in the volume of its sardine business. These little fish swarm in the waters of Southern California in myriad numbers. They are caught by hundreds of millions annually, packed in sauces or vegetable oils and exported. In the 1925 season, 1,254,445 cases containing 180,357,360 cans of tuna fish were packed in Los Angeles, practically all of which found a market in the United States. The sardine pack in one pound oval tins for the season 1925-26 was 1,078,400 cases containing 153,043,296 cans, of which, eighty per cent. was exported. In 1924 the markets of Manila, Buenos Aires and Singapore alone bought almost one million dollars worth of canned sardines from Los Angeles. At the same time Rangoon, Bangkok, Valparaiso, Shanghai, Havana, Saigon, Hongkong and Java as well as India, Belgium and the United Kingdom are rapidly developing as new markets for Los Angeles sardines. These California sardines, like the state grown rice, are sold in the markets of the Orient cheaper than fresh fish can be caught and sold by coolie labor. There are over 1,200 large and small tuna fishing boats alone engaged in the fishing industry at San Pedro serving wholesale fish markets and canning establishments. Shipment of by-products is also developing into a highly profitable business. Japan is a heavy buyer of fish-meal for fertiling purposes. The 1926 export figures for the port of Los Angeles gives a total of 8,959 tons of sardines valued at $1,421,956 exported from the port.

This is the business that has been built up largely through the initiative and labor of the Japanese and now menaced by the introduction of the Hornblower bill at Sacramento. The Los Angeles Chamber of Commerce does not intend to stand by and see one of its rapidly growing industries killed by the passage of such an obvious unfair and discriminating law and has placed itself squarely on record that it will not tolerate any more fool racial legislation.

### Los Angeles Protests

The Los Angeles chamber sees in the bill a direct slap at the Japanese as by prohibiting aliens inelegible to citizenship from engaging in the fishing industry, it is evidently at the Japanese. The chamber in its protest points out that " the fish canning industry of Southern California, and especially the sardine industry, is very largely dependent upon Japanese fishermen. Other nationals do not engage in sardine fishing to any extent, and therefore, if the Japanese are prohibited from engaging in fishing, it will practically stop the sardine canning business. It is stated that Los Angeles and Monterey together can about eighty per cent. of all the sardines canned in the United States, and by far the greater part of these are canned in Southern California."

" The sardine industry of Southern California has been built up in the last few years at this port and has obtained a position of great importance. Not only are the fishermen themselves and the canneries greatly interested in the industry, but likewise export brokers and steamship lines benefit very largely thereby. Canned

sardines form a cargo of great importance to nearly all the steamship lines engaged in off shore trade from Los Angeles, and it has been responsible to a considerable extent for the establishment of some lines plying out of this port."

"In addition thereto, there is a large amount of capital invested in the fishing business by the Japanese fishermen—this investment running into hundreds of thousands of dollars, and the fishing boats afford a considerable business for merchants, ship chandlers and other lines of business at the harbor. The passage of the Hornblower bill therefore would be a blow not alone to the Japanese but also to many other lines of industry."

"No one else is precluded from engaging in sardine fishing, and the fact is that other nationals will not engage to any extent in that kind of fishing. The Japanese have grown up with and developed this industry to a point where the fish canners depend very largely upon that nationality for their supply of sardines. Therefore, the passage of this bill would not only destroy the business of the Japanese and affiliated lines of industry, but no one else would be benefitted thereby."

"Therefore the Trade Extension Section of the Harbor and Foreign Commerce Committee earnestly recommends that the Los Angeles Chamber of Commerce go on record as opposed to Assembly Bill No. 703, and that we use our utmost endeavors to see that the bill is not passed."

### Asiatic Exclusion and Future Trade

This attitude on the part of the Los Angeles chamber of commerce goes far towards taking the edge off the resentment created in Japan by the exclusion law and indicates how rapidly the pendulum is swinging in favor of more equitable treatment towards Asiatics. Sooner or later, the movement must be initiated in this country for a revision of our immigration laws that will place Japan on a basis of equality with other nations without in the least affecting our peculiar racial ideas on which the law is based. The state of California initiated the anti-Asiatic legislation which has been followed by many other countries in the world, yet its commercial interests are always preaching about the great and wonderful future before them in the development of trade in the countries its lawmakers have discriminated against. The initiative for the repeal of the exclusion clause placing Japan and China on the same quota basis as other countries, should be taken by California while there is yet time. Leadership in this matter has passed from Japan to China and in any revision of treaties which recognizes the full sovereignty of the Chinese, Americans will have to squarely face the issue of admitting the justice of the Asiatic viewpoint or sacrificing their future trade interests in the Orient.

# Racial Equality and Treaty Revision

WHILE we are on this subject, it is well to bear in mind that the time is rapidly approaching when the Western nations and Japan must face the issue of a revision of the so-called unequal treaties with China. When these negotiations are opened, Americans will learn to their sorrow that full recognition of China's sovereignty and equal status in the family of nations is not confined exclusively to the abolition of extra-territoriality, surrender of concessions and restoration of her administrative independence over the customs and other revenue collecting bureaus. The United States Government may not be interested in preserving the rights and privileges its citizens have enjoyed under treaties exacted by other powers, and we may cherish the hope that our willingness to comply with the aspirations of the Chinese may secure for us a preferential position in the future trade development of their country, but we are closing our eyes to the fact that the Chinese hold as deep a grudge against us as they do against the British. They do not forget that we deliberately violated a solemn treaty with them when we passed the first Asiatic Exclusion Law and they are as deeply opposed to our present discrimination against their countrymen as are the Japanese.

It may be taken for granted that the Kuomintang will call for an entirely new deal in the matter of immigration, with reciprocal treaty provisions in regard to rights of residence, land-ownership, and the other discriminatory measures attached to "inelegibility for citizenship" which America now enforces against Asiatics. Before we are through with our present adventure in China, we will have to determine whether our trade with that country is of more importance to us that a quota law which places the stigma of inferiority on a people whose civilization goes back to the dawn of history and whose pride of race and traditions are equal to, if not superior to our own. We may delude ourselves into the belief that the Chinese will meekly conform to our present immigration laws in order to retain our friendship and financial assistance in the reconstruction of their devastated country. But if we think that way, we do not know the Chinese. So, leaving aside all the other important angles to the present conflict in Asia, Americans, must be prepared to squarely face a problem that for us may have very grave consequences if we insist upon our present ideas of racial equality. Japan has accepted the discrimination against her people in the sincere hope that in time America's sense of justice will compel a modification of the quota law placing her people on a plane of equality with those of other nations. Japan is leaving this to us, exerting no pressure nor using any threats. She has full confidence in the American people. Japan is dependent upon America as a market for her principal staple and aside from all other considerations cannot afford to endanger her economic existence by openly antagonizing her best customer. It is different with China. She can get along without us. The issue which Japan left us to decide for ourselves, will be taken up and forced through by a people, who, having nothing to lose, can compel us to accept their viewpoint, The same measures which brought Great Britain to her knees can be employed to force the United States to accept the Chinese conception of equality, It is well to recall that the first anti-foreign trade boycott in China in 1905 was directed against the American immigration laws. The weapon so effectively used at that time was subsequently used with equal effect against Japan and more recently with much greater damage against Great Britain. It can be weilded against us once more with the same results.

It is well to look the facts in the face. In what part of the world did this racial discrimination start? Who created the precedents which have been followed by Canada, New Zealand, Australia, British South Africa, and which are now being urged in several Latin American countries? Who laid the first brick in the wall which excludes the Asiatic from the territories of the White Man in the Pacific? California set the example in devising and enacting legislation discriminating against Asiatic immigration, land-ownership and all the other handicaps which have driven the Chinese and Japanese from the lands of the Pacific under control of the White Races. This fact is firmly recorded in the mind of every intelligent Asiatic. As long as China was maintained in an inferior position by the application of the so-called unequal treaties, she could be coerced and imposed upon, but when the time arrives for her sovereignty to be recognized the question of the full equality of the Asiatics will also have to be considered. If we insist upon excluding the Asiatic, depriving him of the rights of citizenship, land ownership and restricting him by law to certain lines of business or labor, we cannot complain if China writes similar laws into her own statute books. Reciprocity between equals in such a case sounds the death knell to our hopes of a great trade future in that country. Are we willing to sacrifice this future for the sake of maintaining our doors closed to the small quota of Asiatics who would be entitled to enter under a general application of our present immigration law?

G. B. R.

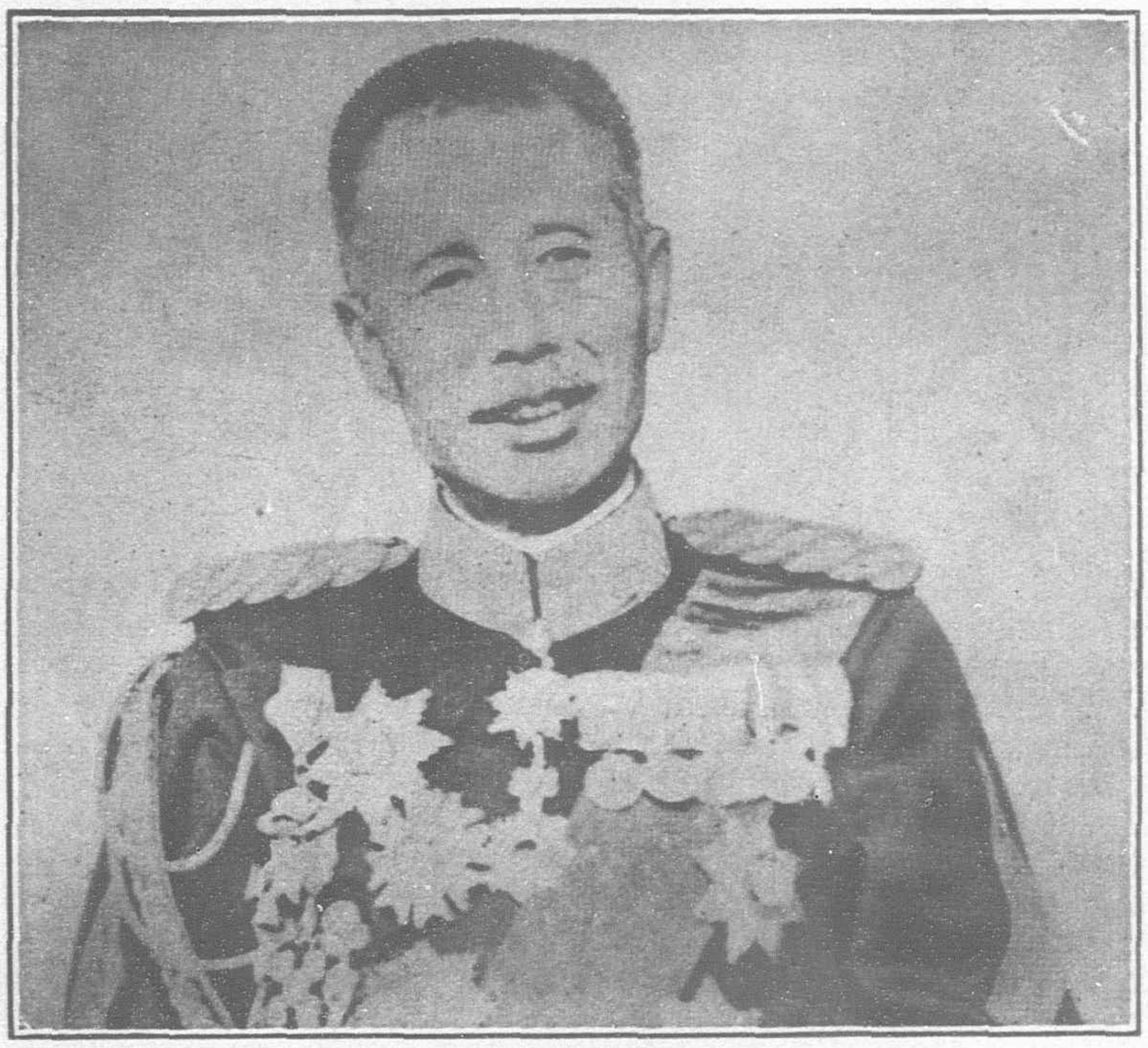
# Baron Tanaka's First Statement as Premier

BARON G. Tanaka, as leader of the Seiyukai Party, upon his assumption of the Premiership of the Japanese Government, delivered the following interesting statement.

I have now formed the Cabinet at the Imperial command and it is a great pleasure to me to make the following statement on the occasion of the assumption of my duties.

The statement I made as President of the Rikken-Seiyukai before the general meeting of the party on April 16th regarding the administration of domestic and foreign affairs embodies the general policies of my Government, and it is superfluous now to reiterate it in detail. The chief aim of my Government is to clear up the atmosphere of unrest prevailing in our economic circles at the present time, invigorate our national spirit, and, on the basis of a fundamental policy of industrialization of the country, carry into effect the renovation of administrative methods, the improvement of education, the decentralization of administration, the development of agrarian districts, the enforcement of social policies, and the maintenance of the sanctity of judicial power.

With reference to our foreign policy, the problem of the utmost importance and urgency to Japan and the Far East is the situation in China. We have long entertained profound sympathy with the legitimate aspirations of the Chinese people and are determined to help them to attain their end, taking into careful consideration the situation at home and abroad. But I consider that such aspirations could be attained in due order and by appropriate means, and I am convinced that it is not the true desire of the Chinese people to disregard such considerations and leave the commotion in China to grow more intense. Moreover, I think that, if the legitimate aspirations of the Chinese people are fulfilled, they will have no wish to endanger the present relations between China and the Powers. It seems that the Powers which have important relations with China are not averse to accede to the legitimate demands of the Chinese people. I have then no doubt that there is a way to satisfy their demands without causing any grave situation in the relations between China and the Powers, and I earnestly hope, therefore, that the Chinese people will give serious attention to this consideration. In the matter of Communist activity in China, Japan can hardly remain indifferent, as she is vitally concerned with the preservation of peace in the Orient generally and is so placed as to be directly and most deeply affected by the results of such activity. It is also a matter of extreme importance from the general viewpoint of the peace of the world and the happiness of mankind in general, and Japan is ready to co-operate with the Powers, after taking into consideration the character of the particular problems involved, the appropriate time, and the proposed measures to be taken. I am confident that this stand which we take will be well-understood by our friendly neighbor Russia.



Baron G. Tanaka

Lastly, I believe that our legitimate economic development will undoubtedly be welcomed by the Powers with which we are in relations of friendliness and intimacy, and I am firmly resolved to cooperate with all nations for the maintenance of peace and order in the world and for the promotion of the weal of mankind.

# British Trade and Industry

*By Gilbert C. Layton, Assistant Editor of "The Economist"*

"SPECIAL TO THE FAR EASTERN REVIEW"

## The Iron and Steel Outlook

An attempt is being made on the London Stock Exchange to revive interest in iron and steel shares. In some quarters, however, it is pointed out that it is still too early to say that a permanent revival has set in. What, therefore, is the position? It is true that at present the industries are working at a high level of activity. Thus the National Federation of Iron and Steel Manufacturers' February figures the latest available—show that the production of pig-iron was 567,900 tons compared with 502,000 tons a year ago. The output of steel ingots and castings amounted to 819,100 tons in contrast with 703,800 tons in February 1926. The number of blast-furnaces in operation at the end of the month was 162, which is fifteen more than 12 months ago. Thus the industry is busier than it was in the months preceding the strike; indeed, a considerable period has elapsed since production figures of this magnitude were returned. It may be added that exports are slowly rising—a welcome development in view of our need for a buoyant export trade in order to enable us to lend abroad.

But what of the more distant future? Here the reports are somewhat strikingly unanimous in expressing disappointment at the volume of new business, the present activity being largely due to an accumulation of orders during the coal strike. For instance, the latest weekly report of the London Iron and Steel Exchange states: "While the two principal industries consuming iron and steel—the shipbuilding and engineering industries—seem to be actively employed, they are using material which is being delivered against old contracts, and the amount of new business coming forward to the British steel works from these sources is disappointing." To some extent, however, the scarcity of new business may be explained by the belief held by buyers that lower prices will be reached. In these circumstances, it is extremely difficult to express

a confident view regarding the more distant outlook for the iron and steel industries until buyers have a larger measure of confidence in values.

## Atmospheric Corrosion of Metals

The prevention of atmospheric corrosion has long presented metallurgists and users of metals with a serious problem. A report recently presented to the British Non-Ferrous Metals Research Association throws much valuable light upon this matter. The report is concerned with the behaviour of typical metals and alloys, on exposure to the atmosphere; it deals both with "indoor" and "open-air" exposure tests, the former including associated laboratory experiments. It was found that indoors, under such conditions that only tarnishing has to be considered, a given element present in the atmosphere exercises an effect which is either negligible or in simple proportion to the amount of element present. But exposed to the open air, the same element may exert an effect out of all proportion to its concentration. It would appear that protection against indoor tarnishing should be sought by other methods than by modification of the composition alone; promising results have been obtained in connection with the formation of protective surface films apart from paints and varnishes.

We may note one or two of the more important results regrading iron. In an ordinary room atmosphere of low humidity, such as obtains urder conditions of artificial heating, the process of rusting is controlled entirely by suspended solid impurities in the atmosphere. The rate of attack falls off with the increase of time. If iron already covered with dry rust is exposed to an atmosphere of the necessary humidity, an extraordinary acceleration in the rate of attack at once takes place. Rusting may be stopped entirely either by filtering the air or by screening the specimen behind a single thickness of muslin. These phenomena have been observed equally upon ingot iron of commercial quality, highly purified iron, and upon steel containing 0.5 per cent carbon.

## Coal and Oil-burning Ships

A month ago attention was called to the possiblity of a return to depressed conditions in the British coal industry. We described the position as then being "somewhat 'patchy'". This tendency is somewhat more evident to-day than it was a month ago. At the meeting of the Cunard Steam Ship Company, the chairman, Sir Thomas Royden, remarked upon one factor responsible for a smaller consumption of coal. He referred to oil-burning ships. Is the oil-burning ship likely to grow in favour or the reverse? Sir Thomas Roydon in effect raised this important question, but was unable to give a clear-cut answer. One of the two largest items among the company's operating expenses is the cost of fuel oil. The cost of fuel oil at the present moment does not compare favourably with the cost of coal, but against the actual cost price there are many advantages to be considered. The express type of steamer can undoubtedly make more voyages under oil fuel than would be possible on coal, owing to the physical impossibility of loading coal as fast as oil, whilst the general cleanliness of the oil-burning vessels and the reduced engine room crews required are also items to be considered.

"At the same time there are limits to the price which we can afford to pay for our oil fuel, and it is quite possible that, if the price of oil continues to rise, we may require to give serious consideration to a reversion, at any rate for a part of our fleet, to the use of coal." In the past it has been accepted that oil fuel was economic so long as the price per ton was not more than two and a half to three times the price per ton of coal. To-day oil fuel is nearly four times as costly as coal. Therefore, the future course of the relative value of coal and oil will be followed with the greatest interest, for a reversion to coal burning would be of considerable importance to the coal industry. Incidentally, it would reverse the tendency of modern shipbuilding.

# Ores of the World

THE American Institute of Mining and Metallurgical Engineers has appointed a committee of five to take up with Secretary Hoover a proposed survey of the mineral resources of the world, to include all minerals, metallic and non-metallic ores. The biggest individual task would be in the United States where every base mineral known is deposited.

The surveyors propose to list India's stores of coal, copper, gold and precious stones; to take cognizance of South Africa's gold, diamonds, coal and platinum; of Australia's gold; of Argentina's petroleum, and of Austria's coal and iron. In China's eighteen provinces there are immense stores of coal and iron, many of them undeveloped. Coal and iron and other minerals would be listed in France, Germany, Hungary, Holland, Poland, Rumania, Russia, Serbia, Spain and Sweden. In Turkey and Portugal the deposits are undeveloped.

The survey would give some idea of how long the mineral resources of the world might last, and there is always the chance that it might discover new and valuable deposits. If this committee could have free access to the highly mineralized areas of Central Asia and report on the deposits of the Altais and Tibet, as well as make a final survey of the possibilities of China, it would easily justify the expenditure on its work. Perhaps the easiest way to accomplish this would be to invite a few German mining experts to sit on the committee. They have been all over the Central Asian mineral fields and have reports on most of the deposits carefully filed away in Berlin.

# A Warning to Japan

## A General Strike is Treason to the Nation.

ON February 12 the following news dispatch from London was printed in the American newspapers.

> **"Next in importance to the budget, the chief feature of this session of Parliament, which opened last Tuesday, will be an act to prevent a repetition of last year's general strike. The government will demand that general strikes be made illegal. The proposed bill will provide for compulsory incorporation of trade unions, separation of their benefit funds from their strike funds, and require an annual audit. The number of pickets in a strike will be limited as well as the areas within which they may operate. Individuals will be liable to prosecution for acts of intimidation."**

Mr. Geo. Bronson Rea, the Publisher and Editor of THE FAR EASTERN REVIEW was in London last May during the general strike and summed up his impressions in an article published in the June, 1926, number of this magazine. He said:

"The balance of trade is going steadily against Great Britain. She is living on her accumulate hoard of wealth, rapidly eating up her reserves. If her foreign rivals make further inroads into her overseas trade and the Labor Leaders adhere to a program which still further increases the price of her manufactured articles, the hungry milluons of Britain will rise in their might and repeat the crime of Russia. With her vast extent of rich, agricultural territory, Russia can raise her own food, sustain life and survive the experiment in Sovietism. Britain cannot. A Labor revolution in England wiping out the capitalist system which preserves its trade position and assures its food supply, means slow death by starvation to the millions unable to escape from the country.

"The Labor Leaders may look upon the General Strike as a perfectly legitimate weapon to redress their grievances; the Government may denounce it as illegal and call it Civil War, Revolution, an unconstitutional assumption of authority by a minority, but a cold-blooded analysis of the situation reveals that its true legal definition is Murder, the calm, deliberate plunging of a knife into the vitals of a great nation by those who know exactly what they are doing.

"The most famous lawyer in England declared the strike to be totally illegal, that the Trade Union Executives and every workman who obeyed their orders has broken the law of contract and is

personally liable to be sued for damages. **That is one interpretation of the written law, but there is a higher law that has not yet been written into the statute books of England. Other countries can afford the luxury of settling their labor controversies by prolonged strikes, even to a general strike. A general strike in England under her present perilous economic conditions is as much treason to the nation as though the Labor Leaders sold out to the enemy in war time. A general strike in England that permanently cripples its industries and destroys the purchasing power of the people, condemning them to starvation and death, is Murder in the first Degree.**

**"The day is coming when the people of Britain, capitalists and workers alike, will demand that a new law based on this conception of crime will be added to their legal code. The Liberty of a poeple is one thing ; the Right to Exist is another. When the exercise of constitutional liberty by a small minority deprives the majority of the Right to Exist, it is time these liberties were curtailed."**

Mr. Rea clearly analyzed the situation and prescribed the remedy. The lesson of England carries a distinct warning to Japan. A Cantonese victory will permit the Soviet to concentrate its propaganda on the Japanese masses and unless the Government is strengthened by a law similar to the one now advocated in England, the calling of a General Strike will write the death warrant to thousands of innocent people.—**A general strike in Japan is Treason to the Nation.**

## Young China

AN American who has spent most of his life in China, Dr. Edward H. Hume, president of Yale-in-China, does not see everything that is happening in that country through a dark glass. He writes in the April issue of *Foreign Affairs* (New York) as follows :

"To those who have felt the violence of the extremists and watched the withdrawal of the moderates, the term Young China means hot-headedness and irresponsibility. It recalls to their minds noisy groups of youngsters, herded into line for a patriotic procession, ordered to shout slogans, compelled to carry banners with truly strange devices, keen to overthrow all order and discipline in school as well as government, 'for patriotic reasons.' Such radicalism, however, is only part of the picture. It is generally admitted that not over twenty per cent. of the student world supports the extremist program. It would be as unfair to limit the term Young China to the violent radicals as to designate only the vociferous and the immature when speaking of Young America or Young France. The truer Young China is the group that is moved by the vitality of spring, crowding out the old stagnancy. It includes the thoughtless, to be sure ; but it also includes even larger numbers of those thoughtful souls, who understand something of what it means to build up a vigorous, self-dependent nation."

## Who Owns the Pearl Harbor Fuel Oil Tanks?

THE United States Supreme Court says that Mr. Edward L. Doheny must go to Congress to collect the money expended by his company in building the Pearl Harbor oil storage tanks without proper authorization. The Navy Department, however, has decided to proceed with the filling of the 4,200,000-barrel-capacity deposit now holding 1,500,000 barrels of oil delivered by Doheny under his contract. It will require more than a year to ship the remaining 2,700,000 barrels and fill the tanks from the nearest producing fields in California. Washington dispatches state that inasmuch as the Navy has no refinery for its crude products, Admiral Rosseau has been instructed to confer with several california oil companies and to arrange, if possible, an agreement by which they would furnish fuel oil for the station at Pearl Harbor in exchange for crude oil from the navy reserves.

This report, coming immediately after Japan's acceptance of President Coolidge's invitation to attend another conference for the purpose of limiting subsidiary cruiser construction, would indicate that our naval authorities are determined to preserve the expanded cruising efficiency of the Pacific fleet derived from a fuel oil deposit that practically doubles the strength of the fleet without the addition of a single ship.

The decision of the Supreme Court allowing Doheny no compensation for the Pearl Harbor tanks (unless his claim is passed by Congress) together with its verdict that the deals which led up to their construction were conceived in fraud and corruption, would seem to open up the question as to whether or not the Navy is now justified in making use of a property that was never authorized by Congress and whose construction immediately after the signing of the first Arms Limitation Pact, placed our government in an unenviable light.

If the decision of the United States Supreme Court means anything at all, it means that the large scale improvements at Pearl Harbor were never authorized by Congress and it must therefore be assumed that the United States did not want them. The Court's opinion that the contracts and leases constitute a single illegal transaction consummated by conspiracy, corruption and fraud, wipes out any taint of international double-dealing on the part of our government and restores confidence in its good-faith. To utilize at this time for national defence purposes, a property unauthorized by law coincident with Japan's renewed expression of implicit confidence in our honorable intentions, is hardly consistent with the decision rendered by the Supreme Court.

Peace in the Pacific as far as the United States, Great Britain and Japan are concerned could be best assured by the complete abandonment and demolition of the Pearl Harbor and Singapore bases with corresponding sacrifices on the part of Japan.

## America's Lost Opportunity

EDISON will devote the remainder of his life to find some rubber producing plant that can be grown economically within the United States. He visualizes the time when his country will again be at war and urless our immense rubber demand can be supplied from domestic sources, it will go hard with us. Down on his extensive Florida estate, the Wizard is experimenting with every plant whose sap holds out even the most remote possibility of containing rubber or some substitute for it. Success has invariably followed his researches and experiments and it would not be surprising any morning to learn that he has capped a glorious career by releasing the nation from its dependence upon foreign rubber producing countries.

In Sumatra, the United States Rubber Company has acquired large tracts of jungle lands for rubber growing. At present, this company through its subsidiary owns a total of 124,000 acres, or 194 square miles, with nearly 50,000 acres in bearing, producing 20,000,000 pounds of crude rubber annually from 7,000,000 tress. These holdings are gradually being extended. These estates are now the largest in the world and will ultimately supply the United States Rubber Company with most of its requirements. The Goodyear Tire and Rubber Company, also controls 18,000 acres and the Continental Rubber Company another 20,000 acres in Sumatra ; the Manhattan Rubber Company has some 2,000 acres in Java while in the Malay Peninsula, the General Rubber Company owns 22,000 acres with 10,000 acres producing. The total value of American rubber investments in this region is around $15,000,000. The Firestone Rubber interests have gone into Liberia on a large scale and acquired holdings that will in time liberate them from foreign purchases.

The Philippines have the land, the soil and the climate to produce all the rubber required by the United States, yet the laws are so framed as to place obstacles in the way of such a tremendous development. For years Congress and the Philippine Legislature have refeused to enact laws that would open the Islands to an industry whose development would give to them the dominant position in the rubber markets of the world. Philippine obstructionists have prevented American manufacturers from developing rubber growing on lands that are under their own flag. By the time they change their mind and come to the United States begging for the capital to make their dreams of independence come true, Edison will have probably discovered a solution to our rubber problems that will relieve us of investing capital in a country where for years it has not been wanted.

# Japan's Crab Meat Exports

## Lauded by Scientist as a Food Highly Essential to Perfect Health

THE 1926 season has turned out a record-breaking year in the Japanese canned crab industry, both in quantities packed and in amount exported, according to a trade note by American Commercial Attache H. B. Titus, at Tokio, dated December 7. Production in 1926 exceeds that of the previous year by about 117,671 cases, an increase of 42 per cent. Exports to the end of November exceed by 54,381 cases, or 26 per cent, the number of cases exported in the same period in 1925.

Exports to the United States up to November 30 of this year are the largest of several years, amounting to 173,514 cases, or 65 per cent. of the total exports. Exports to England amounted to 67,560 cases, or 25 per cent. of all exports, while Australia, Germany, Denmark and other countries have taken 24,159 cases, or 9 per cent. of the total exports to November 30. Exports to England and European countries show large increases and exports to the United States advanced by 8 per cent.

Of the total production for 1926, or 390,000 cases, about 55,000 cases were not suitable for export. Of the lower exportable grades 25,000 cases have been sold locally, making a total of 80,000 cases for domestic consumption. Of the 310,000 cases remaining for export, 265,000 cases have already been exported and when the orders now in the hands of exporters have been disposed of there will be very little of this season's pack remaining unsold.

The consumption of Japanese crab meat as food in the United States is growing rapidly. The meat is obtained from the giant crab of Japan, which measures often seven to eight feet from tip to tip. In a recent lecture on the food value of the Japanese giant crab, Dr. Daniel R. Hodgdon, former president of Hahnemann medical college and hospital in Chicago said that "This particular kind of crab is canned and shipped to the United States in large quantities.

"When it is put up under proper conditions, it is without question an excellent food and one of the best types of crab meat to be obtained.

"Fishing for these crabs is done by dredges, which collect them from the bottom of the sea.

"The claws grow to enormous sizes. The meat obtained from the claws is pure white, shot through with brilliant red fibres. It has a general texture and color resembling somewhat the meat of lobsters, but the flavor is superior to that of lobsters.

"It is interesting, and comforting, to know that this particular sea creature, although a scavenger like our domestic crab, lives at such a depth in the ocean that it has small opportunity to become contaminated with germs of undesirable types, as do our ordinary crabs obtained from places where there is a drainage.

"This crab meat is sweet, clean, tender and wholesome. It is packed in Japan under a rigid system of inspection by the Japanese government. The food is particularly valuable because of its iodine content. The normal intake of iodine into the system is about one-hundredth of a grain. The thyroid gland contains about one-seventh of a grain of iodine.

"Serious conditions arise in the human system when this iodine content is lowered. The daily requirement can only be supplied by a diet which contains food comparatively rich in iodine. The crab is one of those foods. In truth, crab meat stands practically at the top of the list of foods containing iodine, a fact that makes crab meat salad a valuable accessory to the diet.

"Japanese crab meat has an unique place among valuable foods. In cocktails, salads, and in other forms of serving, it is not only an appetizer but a healthful food of itself.

Crab meat contains much phosphorus. It has a favorable stimulating effect upon certain glands and organs of the system. Crab meat is found to have about 10 per cent. of albumin, less than ½ per cent. of fat and about 1 per cent. of carbohydrates. A pound of crab meat contains nearly 500 calories of food value.

"For its phosphorus content alone, crab meat is to be considered valuable. When there is a low phosphorus intake into the human system, there is a degeneration of the peripheral nerve, and a disease called polyneuritis occurs. Human beings may be so seriously affected as to succumb where there is a great deficiency in the phosphorus intake.

"In order to increase the phosphorus supply or to maintain a sufficient quantity it is necessary to eat some form of nuclein food such as the crab. Crab meat tends to stimulate organs in the system which regulates the supply and use of phosphorus.

"The human system stubbornly holds on to the phosphorus which it has and only gives up when necessary. This fact is one strong indication of the importance of phosphorus to the system. It is, indeed, indispensable to the development and maintenance of the system.

"Mental functions and conditions seem to be affected when phosphorus is not taken into the system in sufficient quantities. Diseases, such as acromegaly, ostemalcia and diabetes, frequently occur.

"It is a good thing to know that a vegetable diet furnishes a poor supply of phosphorus. Vegetables contain large amounts of phosphorus, but the system does not assimilate it very readily. In fact, the greater part of the phosphorus from vegetables passes through the intestines unassimilated. On the other hand, the phosphorus in crab meat, it appears, is absorbed by the system with ease.

"Phosphorus influences the assimilation of lime, which is equally necessary to the system. The crab furnishes a fair quantity of lime, and where phosphorus enters the system the lime is more easily made use of by the body.

"Crab meat, prepared as it is, is not deprived of its valuable food salts, as are some foods, through cooking processes under long, high pressure. Other values might be cited besides the lime and phosphorus content, but these two minerals of themselves justify our praise. There are dangers from a too small intake of lime into the system which parallel the dangers from too little phosphorus.

"The giant crab of Japan can be recommended to the household both for its tastiness and its wholesome qualities."

# Japan is Marching Forward

*By Hirosi Saito, Consul-General of Japan in New York*

THE new Japanese land law which passed the imperial diet in 1925 and was put into operation this month, removes the age-long inhibition of land ownership by aliens in Japan.

Aliens have so far been denied the right of land tenure through traditional practice, reinforced by the edict of 1873, reading: "Land or its title deed shall not be made an object of sale or mortgage to an alien, or aliens in exchange for money or as security of a loan."

In practice, however, foreigners have enjoyed rights tantamount to land ownership; for instance, lease in perpetuity. Moreover, in the form of juridical persons in which no Japanese member need be included, they could not hold land in fee simple.

But it was considered by the Japanese lawmakers that land ownership should be allowed to aliens in consonance with the general progress of international idea regarding civil rights of aliens. As far back as 1910 a law was enacted by the Japanese diet to recognize foreign ownership of land, but that law was found defective and unworkable. After repeated discussions in the diet, the new law of 1925 was made. Before it could come into effect, it was necessary that an imperial ordinance thereunder should decide upon detail rules and regulations for its actual functioning. Such imperial ordinance has been recently issued.

The imperial ordinance did not use the power delegated to it by the land law to resort to reciprocal measures for the country or parts of the country where foreigners are more or less abridged in their rights to own land. Accordingly, Chinese can enjoy the ownership of land in Japan despite the fact that China does not allow all aliens to own land in that country. Nor are the citizens of the states of California, Oregon, Washington and certain other states of the American Union that do not recognize landownership to Japanese denied the right of land tenure in Japan.

The restriction provided for in the imperial ordinance is only regional. For an alien to acquire the ownership of land in fortified zones, naval ports, or other designated districts vital to national defense, the permission of the minister of war or the minister of the navy should be obtained. Lease may, however, be acquired without any permission. Further, in the commercial districts of the open ports of Nagasaki, Hakodate, Shimonoseki and Mogi, no permission is needed to acquire the ownership or the leasehold of land.

The new land law applies to Japan proper, including Hokkaido, and the island of Saghalin. In Korea aliens' rights of landownership have always been recognized in the past and will be so in the future. The island of Taiwan is now the only district where alien landownership is not recognized.

# Russo-Japanese Traffic Agreement

AN agreement has recently been entered into between the Chinese Eastern Railway and the Yamashita Kisen Kaisha covering ocean transportation from Vladivostok to ports of Japan, China, India and Europe. Three years ago it was reported that the Soviet authorities were negotiating a similar agreement with the Dollar Steamship Company in which the American line would enjoy a monopoly of handling the through Trans-Pacific freight of the Chinese Eastern Railway from the port of Vladivostok. The object behind the agreement was to penalize the port of Dairen and line up the United States Government on the side of the Soviet against Japan in Manchuria. Under the new agreement, the Yamashita Kisen Kaisha is granted the exclusive right to carry all ocean freight from Vladivostok emanating from the Chinese Eastern Railway for Asiatic and European ports, inaugurating immediately a regular service between Vladivostok and Shanghai, which, however, is not to interfere with the work of the Soviet Russian Volunteer Fleet.

# A Cantonese Colony

FORMER Secretary of War, Henry L. Stimson, has visited the Philippines and recorded his impressions in *The Saturday Evening Post*. He rejects the popular idea that ultimate independence depends primarily upon the fitness or capacity for that task of the Filipino race and asserts that an economic foundation assuring to the new state the revenues necessary to defray the costs of government is the most important problem to be considered. Philippine prosperity, such as it is to-day, is a gratuitous gift from the American people, an indirect subsidy derived from the remission of customs revenues on Philippine products. This alone permits Philippine sugar, tobacco, embroideries and other native staples to compete in our market with similar foreign commodities subjected to a higher rate of duty. Take away this subsidy and the entire governmental and economic structure of the Islands would collapse like a house of cards.

Mr. Stimson contrasts the picture of a peaceful, prosperous Philippines under American rule, where a population of less than 12,000,000 Malays are secured in the enjoyment of their heritage by the operation of an exclusion law designed originally to protect highly-paid American labor against an influx of Asiatics. More than 80 per cent. of the area of the archipelago is unoccupied public land belonging to the government. Of the land fit for agriculture, less than 40 per cent. is under cultivation. The contrast between this picture of Malayan prosperity and the civilizations which surround the Islands was never more striking than it is to-day, when over-populated China is seething with militarism and pervaded with a new-born national feeling based primarily upon a hatred for everything foreign, and when Japan is confronted by the sternest kind of problem for providing for a surplus population no longer to be taken care of upon her present economical development. "The visitor" adds Mr. Stimson, "receives an unforgettable impression of an easy-going, kindly, hospitable, agricultural Filipino people, protected against inundation from the seething mass around it solely by the Exclusion Laws and the military strength of the United States." In other words, Stimson sees the Philippine problem exactly as we see it. The Filipino receives all the benefits of American government without any of the obligations. He is maintained in complete enjoyment of his own resources against the competition of his Asiatic fellow-men while free to enter the United States to compete with and lower the scale of American wage-earners.

Mr. Stimson also invites attention to another fact which at this moment should receive the most careful consideration of the American people. The pure-blooded Malay stock of the Islands totals 93 per cent. of the population. The other 7 per cent. are the *mestizos*, descendents of Spanish and Chinese intermarriages with the native women, who comprise in their number practically every political, military or industrial leader in the country. Not one pure-blooded Malay has become prominent in the affairs of the Islands. The voice that we hear to-day, claiming to represent the natives of the Philippine Islands, is the voice of this small group of intellectually superior men and women of partly foreign blood, who hold in their hands the present-day leadership of those islands. The exploitation of one class by the other is apparent on its face, and the *mestizo* who talks of independence has no other object in view than to perpetuate his hold over the ignorant masses.

Mr. Stimson might have gone further and pointed out that the majority of the intellectual or *cacique* class are *mestizos* of Chinese extraction. Chinese blood in Malaya means in almost every instance the Cantonese strain, and the overseas Cantonese are all enrolled in the membership of secret societies, which for years have financed Sun Yat-sen in his fight against Peking and foreign interference in the affairs of their country. Politically, Malaya in general is ruled by the colonial governments of foreign powers; economically, they are for all practical purposes colonies of Canton. If China becomes united under Southern leadership, the time is not far distant when we will hear more about the rights of Asiatics within their own spheres of influence.

# Where Unsold Newspapers Go

WE once heard the story of how an English-language newspaper published in the Far East increased its circulation several thousand copies through the simple process of printing the extra copies over and above its legitimate sales and disposing of them to a commission merchant who shipped them to Java or Manila to be used there as wrapping paper, the value of which at that time being about equal to the cost of news print. The newspaper publisher could certify to his circulation by proofs of the amount of paper used daily and in this manner supported his statement that his newspaper had the largest circulation in the Orient.

It was evidently too good a thing to last long and other commission merchants soon entered into the competition for supplying the demand. In the exports from the port of Los Angeles for the year 1926, there appears an item of 27,229 tons of paper valued at $688,537, which the chamber of commerce expert says represents almost in its entirely unsold newspapers shipped to Asiatic ports for use as wrapping paper.

American export statistics show that quite a flourishing trade has been established in the Orient in unsold newspapers where they are used as wrapping paper by hawkers and venders. India, China and the Dutch East Indies are the largest markets.

Java, Madura and Sumatra in 1925 imported 12,309 short tons, of which about 10,400 was furnished by the United States. Hongkong, in the first six months of 1925, imported 11,818 short tons; Shanghai, 1,275 short tons. Dairen, Korea, absorbed 8,719 short tons during the same year.

British India is the largest customer for old newspapers, but most of them come from the United Kingdom. In 1925-26 she imported 31,660 short tons, of which 9,343 came from the United States.

Most in demand are clean newspapers, with no colored supplement and relatively few pictures. Least in demand are the tabloid newspapers.

# The Curtain Punkah—New Style

SPECIALLY designed for tropical climates the "Rangoon" fan, made by The General Electric Co. Ltd., of Magnet House, Kingsway, London, W.C.2., not only keeps the air circulating freely, but, in addition, delivers an intermittent volume of cooling air every five seconds, in a similar manner to the old-fashioned curtain punkah. This intermittent draught allows the body to perspire between the cooling periods, and thereby induces a healthy physiological effect.

Fitted with a ball thrust bearing running in oil, and automatically lubricated, the motor is of the semi-enclosed induction type, the windings being specially insulated. The fan is practically noiseless and, owing to the careful design, the current consumption is very low, the actual figure being 120 to 125 watts on voltages between 100 and 250, single phase, A.C. and for a periodicity of 50 cycles.

The three blades are made of aluminium sheet, formed under pressure into a definite contour, which has been determined by exhaustive research. This contour ensures minimum slip and gives the highest possible volumetric efficiency, combined with lightness. The sweep of the blades is 60 ins. and the speed 190 revolutions, per minute, while the total weight is 57 lbs (=26 kilos.) The length of the down rod is 60 ins.

A standard finish of white enamel and nickel plate, picked off in gold mines, gives a very pleasing appearance, and the aluminium blades are frosted to prevent flicker while rotating.

# List of Chinese Internal Loans Outstanding on May 1, 1927

*Compiled by E. Kann, Shanghai. Author of "The Currencies of China"*

| Name of Loan | Issued In | Total Amount Authorized | Total Amount Issued | Outstanding at present | Rate % | Interest Payable | Secured by the | Bonds Issued | Repayment |
|---|---|---|---|---|---|---|---|---|---|
| 4th Year National Loan (Additional Issue)* | 1923 | $ 2,800,000 | $ 2,800,000 | $ 700,000 | 6% | Apr. 12 Oct. 12 | Rev. of Native Customs and Likin in Shansi | $10,000 $1,000, $100 $50 $10 $5 | From 1924 by annual drawings. |
| 5ht Year National Loan* | 1916 | $20,000,000 | $20,000,000 | $ 9,566,210 | 6% | Mar. 31 Sept. 30 | Consolidated National Loan Sinking Fund | $10,000 $1,000, $100 $10 $5 | Within 12 years by half-yearly drawings from 1926. |
| 7th Year Long Term National Loan | 1919 | $45,000,000 | $45,000,000 | $45,000,000 | 6% | June 30 Dec. 31 | Consolidated National Loans Sinking Fund | $10,000 $1,000 $100 $10 | Between 1929 and 1938 by half-yearly drawings. |
| Chinese Government 9th Year Short Term Loan for Improvements of the Monetary Market | 1920 | $60,000,000 | $60,000,000 | $10,788,200 | 6% | Mar. 31 Sept. 30 | Consolidated National Loans Sinking Fund | $10,000 $1,000, $100 $10 $5 $1 | Between 1921 and 1926 by semi-annual drawings. |
| 10th Year 96 Million National Loan | 1921 | $96,000,000 | $56,391,300 Y.39,608,700 | $56,391,300 Y.32,476,200 | 8% | Jan. 31 July 31 | Salt Surplus | $1,000 $100 $10 | Between 1923 and 1929 by half-yearly drawings. |
| Chinese Government consolidated 6% National Loan | 1921 | $80,000,000 | $54,392,000 | $39,162,405 | 6% | June 1 Dec. 1 | Consolidated National Loans Sinking Fund | $10,000 $1,000, $100 $50 $10 $5 | Within 10 years from 1921 by yearly drawings. |
| Dtto 2nd Series | 1921 | $25,600,000 | $25,600,000 | $25,600,000 | 6% | Jan. 1 July 1 | Not definitely secured | Dtto | Between 1931 and 1935. |
| Chinese Government Consolidated 7% National Loan | 1921 | $13,600,000 | $13,600,000 | $ 9,792,000 | 7% | Feb. 28 Aug. 31 | Consolidated National Loans Sinking Fund | $10,000 $1,000, $100 $10 $5 $1 | Between 1921 and 1930 by yearly drawings. |
| Dtto 2nd Series | 1921 | $ 8,800,000 | $ 8,800,000 | $ 8,800,000 | 7% | Mar. 31 Nov. 30 | Not definitely secured | Dtto | Between 1931 and 1935. |
| 11th Year Short Term Loan* | 1922 | $10,000,000 | $10,000,000 | $ 2,000,000 | 8% | May 31 Nov. 30 | Deferred Russian Boxer Indemnity | $10,000 $1,000, $100 | Within 5 years from 1923 by half-yearly drawings of $1,000,000 ecah |
| 13th Year Treasury Notes* | 1924 | $ 4,200,000 | $ 4,200,000 | $ 1,500,000 | 8% | Mar. 31 Sept. 30 | German Boxer Indemnity | — | In semi-annual instalments 1925-1927. |
| 14th Year National Loan* | 1925 | $15,000,000 | $15,000,000 | $15,000,000 | 8% | Mar. 31 Sept. 30 | German Boxer Indemnity | $10,000 $1,000, $100 | In semi-annual instalments 1928-1934. |

*Secured on Customs Revenue.

# Mining Companies in Foochow

FUKIEN, being a mountainous province, is rich in mineral resources. Since the last days of the Manchu Dynasty several companies have been formed in Foochow, the capital city, for operating various mines in the province, but none of them has met with success.

The first molybdenum mine was discovered in Inghok district by Hwang Tze-chung toward the end of the Manchu regime. This discovery induced a number of capitalists to engage foreign mining experts for exploring the mineral resources of the province. As a result, other molybdenum and copper mines of Inghok, lead and silver mines at Ningteh, a copper mine at Nanping and a coal mine at Shaowu were brought to light one after another. The first company organised for mine development was the Kai Yuan Mining Co., promoted by Lin Hsiang-ling and other wealthy merchants of Foochow to work the molybdenum deposits at Lipikeng in Inghok district and at Taokengshan in Ningteh district. This company was dissolved within two years, after wasting about a year's labor and a large sum in fruitless exploitation.

The Tsung Shih Mining Co. was organised later by Yeh Kwo-jui in Foochow to operate the molybdenum mine at Lipikeng and the lead and silver mines at Kweishan, Kiutu in Ningteh district. This company engaged an experienced mining engineer for prospecting work, resulting in the discovery of a number of mineral veins. But internal dissension prevented the shareholders of the company from paying up their subscribed shares, and finally the company had to be dissolved after more than a year's unsuccessful development.

In 1913, the Yung Pao Mining Co., promoted by Liu Yueh-yen, a Cantonese merchant and Chinese Manager of Gilman & Co. in Foochow, was formed with an initial capital of $25,000 to continue the exploitation of the Lipikeng molybdenum mine. An agreement was concluded between the company and the 12 joint owners of the mine by which the former acquired the property at a fixed price, paid in stock of the company. But, after about a year's exploitation, no tangible result was obtained.

Among other mining companies formed later in Foochow, a few might be mentioned : (1) the Ning Pao Mining Co., promoted by Lin Kwei, a member of the local gentry, for exploiting the lead and silver mines at Yingshanpan, Shihtang in Ningteh district ; (2) the Hwa Hing Mining Co., organised by Chwang Weihsin, a local merchant, for working the lead mines at Tungpaoshan and Shihtzeshan in Ningteh district ; (3) the Hwa Pao Mining Co., for operating the copper mine at Tsaoto, Kingshali in Nanping district ; and (4) the Peng Hing Mining Co., for operating the molybdenum mine at Inghok. All these companies met with failure and were short-lived.

In more recent years, the Foochow Electric Power Co., exploited the coal mine at Lishan. The production of coal was quite large, but the quality was poor and the cost of transportation too high for profitable operation. Work was soon suspended. The main causes for these failures were lack of adequate capital, absence of transportation facilities, lack of technical skill, and metallurgical equipment, mismanagement, and the limited demand for minerals on the local market.

# Economic Bases for New Railways in Manchuria

*By C. Walter Young, M.A.*

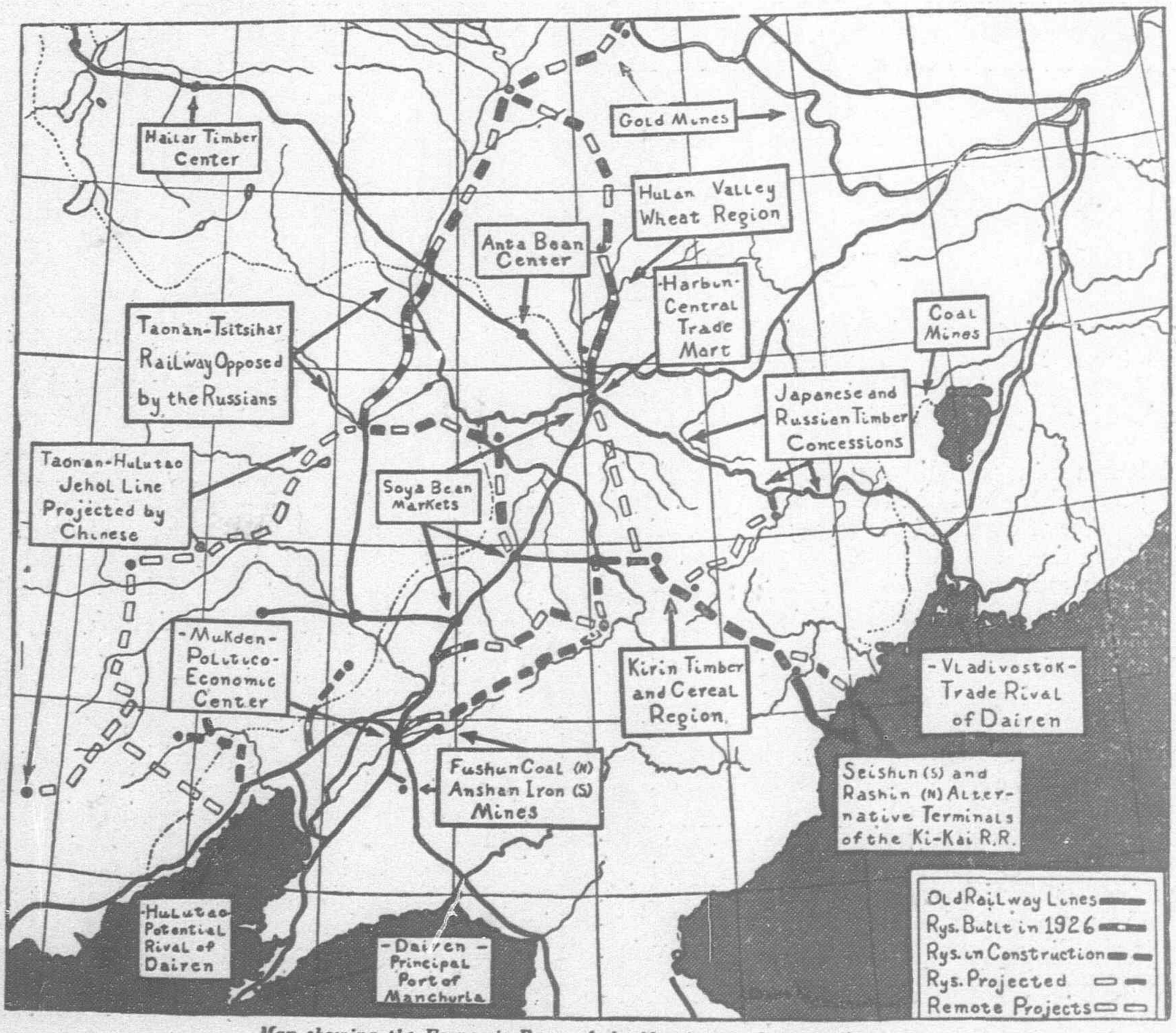
NOWHERE in the Far East during the past few years has there been more railway construction than in Manchuria. Consequently, in many quarters there is the current query, and as often assertion, that in Manchuria railways are being constructed by the interested parties principally, if not solely, for strategic reasons. Every railway which pierces a frontier, hitherto undeveloped, rich in potential resources, over which two or more countries are competing for the produce of its lands, must of necessity have some strategic significance. Too often, however, the strategic motives are given stress far beyond just desert, principally by those who seek in sensationalism to gain a hearing for what otherwise might seem dull reading to a public which feeds on news features.

New railways in Manchuria are being constructed through regions which formerly have had to depend on the cumbrous cart traffic or slow river boat method of transporting produce to markets, markets which depend for their utility on their railway connections with the two principal ports, Dairen and Vladivostok, the chief assembling and distributing centers for the South Manchuria and the Chinese Eastern Railways. There is not a railway in Manchuria recently completed or now under construction which does not derive its *raison d'etre* from motives basically economic, though, it may be admitted, the freight goal at times may be rather more ultimate than immediate and obvious.

*Railways and the Trade of Manchuria.*—Already Manchuria has more than half as many miles of railway as all the rest of China,* a total of nearly three thousand miles in a territory which thirty years ago had not a rail. Six hundred more miles are now under construction and projects reasonably sure of maturing within the next five years would bring Manchuria's total mileage nearly to five thousand. It is the factor of these railways which, since the beginning of the twentieth century, has made of Manchuria the granary of North China, a producer of fundamental minerals such as coal and iron, of timber, of various raw and staple products, as well as a market for foreign goods, principally railway construction materials, rolling stock and accessories, machinery for manufacture, cotton and woollen goods, hardware, oils and kerosene, electrical goods and sundries.

The annual influx of Chinese workmen, many thousands each year, from over-populated Shantung and Chihli has, within the last two years particularly, taken on new complexion with the fact that a much larger percentage of these hitherto termed "spring come, autumn go" workers are now permanently colonizing the Three Eastern Provinces. Disturbed conditions in Shantung and Chihli, together with comparatively settled conditions in Manchuria—in spite of currency fluctuations—have been contributing factors in this permanent immigration. The construction of new lines in Manchuria, however, is the basic cause for this influx, for one need but refer to the conditions attending the opening of such new lines as the Taonan-Angangchi to see the evidence.

*Foreign Trade of Manchuria.*—In the reports of the Maritime Customs for the principal "ports" of Manchuria one finds the record of foreign trade, which may be taken as an indicator of the place of the Three Eastern Provinces in the entire trade of China, Dairen, the chief port, now ranks second only to Shanghai in value of import and export trade handled. Although Tientsin ranks ahead of Dairen in point of imports value, that port has been outdistanced not a little by Dairen on account of the latter's export trade, principally to Japan. Dairen, according to the Maritime Customs Reports for 1924 and for 1925, in each of these years exported goods valued two to three times greater than those leaving Tientsin for foreign consumption. And because Japan buys more than any other foreign nation from Manchuria, that nation reaps the benefit of the operation of the well-founded economic principle that whosoever buys most has the advantage in selling. Japan takes 60 per cent. of the total export through South Manchuria; China takes 20 per cent. Of imports Japan supplies 40 per cent, while China supplies 30 per cent. The predominance of Japan in Manchuria's foreign trade is noteworthy as a



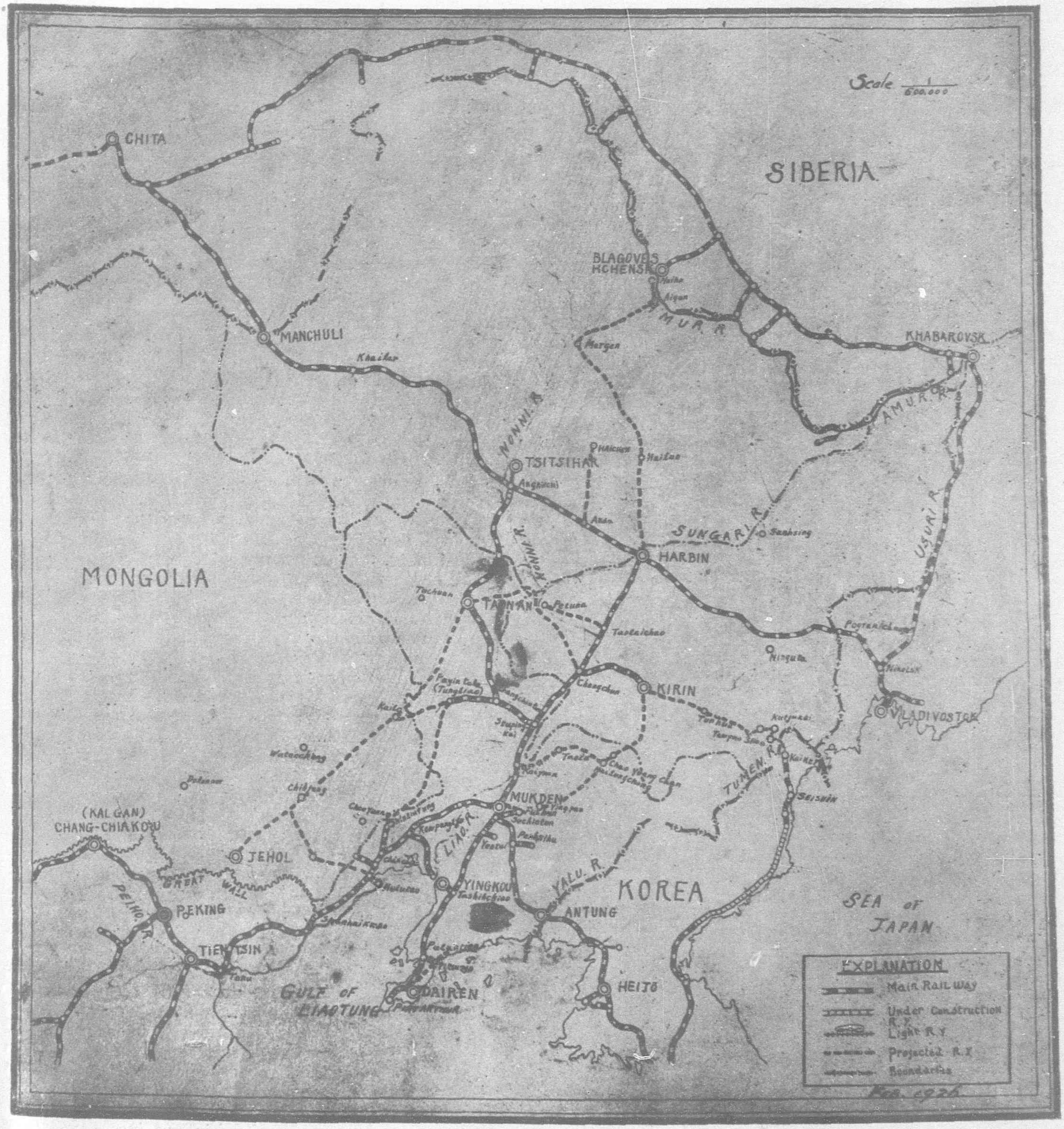

*Map showing the Economic Bases of the Manchurian Railway System.*

*See Statistical Supplement No. 25 for a list of China's railways and see the Railway Map of China, published by the Bureau of Economic Information.

preliminary to the study of that nation's interests in railway construction in Manchuria. Beans, bean cake and bean oil are the principal staples that swell the export to Japan.

Dairen alone supplied 8.87 per cent. of the Maritime Customs revenues in 1925, placing that port third in point of customs income for the Chinese Government, Shanghai being first, and Tientsin, second. The Kwantung Leased Territory itself is a free trade zone. Some idea of the whole trade of Manchuria may be had by reference to the fact that the entire trade value, including native Chinese imports, for 1925, computed from returns of the five principal "ports," Dairen, Newchwang, Antung, Aigun and Harbin district, was 492,932,488 Haikwan taels. In passing it is informative to note that while Japan purchases exports twice the value of those purchased by her nearest competitor, China, and as much as all the other nations together, including China, that nation is also first among those who supply what Manchuria buys. The United States follows China as a poor third, with the United Kingdom and Hongkong combined in an even more distant fourth. Germany is fifth among the nations who supply goods to Manchuria.

*Misconceptions as to Manchurian Resources.*—These rather weighty figures are given not to overawe the reader but rather to state facts from which to make comparative judgments as to the wealth of Manchuria. It is as common to over-estimate the riches of the Three Eastern Provinces and their potentialities as to undervalue them. Heilungkiang, Fengtien, and Kirin are, speaking very generally, and compared with the coastal provinces of the rest of China, quite undeveloped from the agricultural point of view. This is still truer of commercial development, for manufacturing is still limited to production of certain staple foods and a few miscellaneous products. To compare the agricultural wealth of Manchuria as a whole with the Mississippi valley in the United States is probably to err on the side of flattery for the former. South Manchuria, generally thought of as of great agricultural




**New Railways in Manchuria**

value because it is best known abroad, is far inferior in soil fertility to the central regions about Changchun and Kirin and to the northern sections about Harbin and in the valleys of the Sungari and the Amur (Heilungkiang) rivers. Heilungkiang province presents the greatest possibilities for the future in agriculture while Kirin, equally fertile in parts, may be characterized as the zone of greatest development for the near future.

Although the Three Eastern Provinces for years to come will serve to support hundreds of thousands of pioneers from the more densely populated provinces of North China, it should not be assumed that undeveloped areas in Manchuria are limitless. The saturation point, to be sure, is far in the future, which emphasizes the significance of the present program of railway construction in the development of these hitherto virgin regions. Taken as a whole, Manchuria is more densely populated than the United States. This in spite of the fact that Heilungkiang, much the largest Manchurian province, has probably but one-tenth the population per square mile of Fengtien province, and one-fifth the population per square mile of Kirin. The wealth of Manchuria in point of foreign trade quite naturally follows the flow of population, which in turn has more or less concentrated in areas where railways have penetrated. These general truths will serve as an introduction to a study of new railway construction which is today the chief characteristic of Manchurian economics.

## Railways Recently Constructed in Manchuria: Japanese Financed Lines

*Taonan-Angangchi Railway.*—Of the new Manchurian railways the Japanese in particular consider the Taonan-Angangchi extension as of first importance. The line is generally regarded as traversing a region rich in agricultural wealth. This, however, is not strictly true, for much of the land contiguous to the line is alkaline, hardly adapted, therefore, to heavy crop production. The economic motives appear, however, in the fact that it will make possible the diversion of traffic west from the rich Anta district on the Chinese Eastern Railway between Angangchi and Harbin. Anta is the chief assembling center for one of the richest produce areas of Manchuria whose output hitherto has generally been marketed through Vladivostok, due principally to low through freight rates to that port, as against prohibitive through rates *via* the southern branch of the Chinese Eastern from Harbin.

North and west of Tsitsihar are to be found vast virgin forests of the Great Khingan mountains, which in the past have had to depend solely upon the Chinese Eastern for exploitation. It is noteworthy that the Japanese already have in this section the so-called Chaimen timber concession, obtained by purchase a few years ago from the Svetchenko brothers. In considering the economic potentialities of the Taonan-Angangchi line it is important also to include the resources of eastern Inner Mongolia which as yet have found only poor access to world markets. Arrangements have recently been made with the Mongolian princes for settlement by Chinese immigrants of certain lands contiguous to the railway.

The Taonan-Angangchi Railway is a Japanese-financed line constructed under a Sino-Japanese agreement by which the Japanese undertook to supply the capital investment, the rails, the stations and the rolling stock and to construct the line under the supervision of Japanese engineers. Legally the railway is the property of the Chinese. In pursuance of this agreement all construction materials were supplied by the Japanese, rails, some second-hand, and rolling stock having been brought from the South Manchuria Railway. In 1926 Mitsui Bussan Kaisha purchased from the United States Steel Corporation, to be used on the line, rails to the value of Y.457,000. A Japanese official estimate of the total expenditure on account of rails and construction is Y.12,000,000. The outlay for lease of rolling stock is another Y.2,000,000.

The last section of the South Manchuria Railway branch line from Ssupingkai to Taonan was opened to through traffic in November 1923. Upon the completion of this feeder line to the South Manchuria Railway the Japanese instituted plans for financing the construction of a line legally Chinese from Taonan to Angangchi, the latter a station on the main line of the Chinese Eastern from which a light railway proceeds north seventeen miles to Tsitsihar. During 1925 the first section of the Taonan extension was built, and when the ice melted on the Nonni river in the spring of 1926 the frame of a bridge, 2,630 feet long, had been built, and with the use of American track laying machines, which made possible the laying of three and a half-miles a day, the line was extended northward until on July 4, 1926, construction to Angangchi was completed, a distance of 140 miles.

At this juncture plans for continuing the line to Tsitsihar, the capital of Heilungkiang, were impeded by the Russian side of the management of the Chinese Eastern Railway, who opposed the construction of a Japanese-financed line across the Chinese Eastern into the north Manchurian sphere. The Chinese authorities, however, met the objection of the Russians with the declaration that Russia had no legal right to obstruct the construction of any railway on Chinese soil for which there was no treaty stipulation to the contrary. Precedent was cited in the building of the Peking-Mukden line across the tracks of the South Manchuria Railway at Mukden, and, after protracted parleying, a place was found outside the railway zone at Angangchi for the construction of a viaduct by which to cross the Chinese Eastern. The line was formally opened to traffic in the early autumn of 1926. Subsequent floods have interfered somewhat with traffic, but the line is now in complete operation.

International interest has attended the construction of the Taonan-Angangchi Railway because it is the realization in part of the American Straight-Harriman Chinchow to Aigun project which failed partly because of the combined opposition of Japan and Russia. In future, attention will be focused upon the probable extension of this railway to Tsitsihar and to Mergen, there to connect with the extension of the Hulan-Hailun Railway from Harbin, as well as on to Aigun on the Amur (Heilungkiang) river.

Two factors principally have caused the Russians to oppose the construction of the Taonan-Angangchi Railway and lines in northern Manchuria for which Japanese have furnished the capital. First, 60 per cent. of the alien traffic of the South Manchuria Railway at present comes direct from the Chinese Eastern Railway. Second, this alien traffic of the South Manchuria Railway is 40 per cent. of the total traffic carried by that line. Within recent years practically all the goods traffic of the southern branch of the Chinese Eastern between Harbin and Changchun has moved south to Dairen over the South Manchuria Railway. The fact that the construction of the Taonan-Angangchi line may serve to divert a considerable portion of the traffic from Tsitsihar and Anta, which have been the mainstays of the Chinese Eastern carrying trade, has created a serious economic problem for the latter.

*Kirin to Korea Railway.*—This line now under construction with Japanese capital is commonly termed the Kirin-Tunhua line. In reality it is but the first segment in a railway which is projected from Kirin to connect with a standard gauge line that already runs from Kainei, on the Korean border, to the sea at Seishin in Korea. The Kirin-Kainei Railway, as it is termed by the Japanese, is hardly less significant than the Taonan-Angangchi project, for its future will be a factor of great importance in diverting traffic from the main line of the Chinese Eastern Railway. It will give the Japanese a new approach from the east to Harbin, the principal market of North Manchuria, a route which will be somewhat shorter to Japan than the Dairen route for goods from Harbin. Dairen is 869 nautical miles from Kobe; Rashin, the Korean port which may be substituted for Seishin as the terminus of the Kirin to Korea line, is but 425 nautical miles from Tsuruga, an excellent harbor, now the Japanese port of communication with Vladivostok. The construction of the Ki-Kai line will beyond question seriously menace the future of Vladivostok; how much will be determined by the facilities which the Japanese acquire eventually for diverting freight from Harbin. Much of the produce of Kirin province, which in the past has had to be transported by cart north to Hailin on the Chinese Eastern *via* Ninguta to find an export market at Vladivostok, will be turned south toward Korea, upon the completion of the Kirin to Korea line.

Not only will the haul be shorter from Harbin to Japan, but the region traversed is unquestionably of great economic value. The Kirin to Korea line will open up a territory vastly richer than that through which the Taonan-Angangchi line passes. The Japanese surveyers plan to construct the line through one of the best timber sections of Manchuria near the headwaters of the River Hurka, which, because of its swiftness and the waterfalls in its course, will be used in future to produce hydromotive power.

The mineral resources of Kirin province have never been adequately computed. Some gold and copper are now mined.

the latter in the T'ienpaoshan district contiguous to the Kainei terminus of the proposed line, and adjacent to the Korean border on the Manchurian side. Aluminium, which finds such significant application in aviation, is to be found in the valley of the Hurka, north of Tunhua.

Under the aegis of the Japanese, notably upon land reclaimed by Koreans, rice is being grown north of the Korean border, in fact even in the Siberian littoral much farther north. The Chientao district particularly is an area which produces that staple foodstuff of both Japan and China. Soybeans, wheat and other cereals, which formerly found a market either by cart traffic in the basin of the Hurka to the Chinese Eastern Railway, or to Kirin, whence they were transported west to Changchun and then south to Dairen, will in future find a new market through the Ki-Kai line to northern Korea and Japan. New trade marts with international settlements will likely be opened shortly along this line between Kirin and Tunhua.

Japanese capital is interested in a project for the construction of a feeder line to follow the old route of the cart traffic in the basin of the River Hurka, roughly from Tunhua north *via* Ninguta to Hailin, where there is now a Japanese timber concession, not particularly successful. In this project, which will probably be consummated within the next few years, the principal Russian and Polish private concessionaires, including Messrs. Kovalsky, Skidelsky, and Popoff, who have timber interests between Harbin and Pogranitchnaya are keenly interested. A newly formed Australian syndicate in which the Popoffs are financially interested, registered under the British flag, and which has elaborate plans for the manufacture of various timber products such as paper pulp, turpentine and veneer, look with favor upon the opening of a Hailin to Tunhua line to connect with the new railway that will ultimately extend to Korea. Obstructions and excess harbor charges at Vladivostok make them favor another route for carrying timber products to Japan and the world market.

Originally the construction contract for the Kirin-Korean line was granted by the Chinese Government to three Japanese banks whose interests were later assumed by the South Manchuria Railway Company. The so-called Nishihara loans contained a section which provided for the advance of Y.10,000,000 to the Chinese Government in consideration of the Japanese right to construct a railway from Kirin to the Japan Sea; just where was indefinite. Subsequently, on October 24, 1925, the South Manchuria Railway, represented by Mr. Matsuoka, obtained an agreement with the Ministry of Communications, by which the construction contract was conceded to the former. The line, by the terms of the agreement, is to remain a legally Chinese railway, on the same basis as the Changchun-Kirin line, of which it was to be considered an extension. The contract, though repudiated in 1925, was later re-established by the Chinese Government.

The Kirin to Korea line is now under construction, the roadbed having been completed as far as the Sungari river, where construction of a bridge during January and February, 1927, was facilitated by the placing of several thousand sleepers on the ice over which rails were laid for the moving of work trains. Permanent rails will be laid in the spring. At least three large tunnels are included in the Japanese surveys, which fact has materially increased the Japanese estimate of the total cost. Exclusive of these, however, the South Manchuria Railway estimate of construction cost from Kirin to Tunhua, a distance of 135 miles, has been given as Y.18,000,000. This to be an obligation on the line itself. Probably five years will be required before the entire line from Kirin to the Korean coast is completed.

*Chinchow-Pitzuwo Branch Line.*—Before passing on to a consideration of Chinese financed lines in Manchuria mention should be made of the Japanese railway from Chinchow, north of Dairen, to Pitzuwo, which crosses the South Manchuria Railway at Shihsanlitai. The entire roadbed has been completed and rails had been laid from Chinchow to Shihsanlitai by the end of February, 1927. This line is a subsidiary of the South Manchuria Railway constructed to develop the Kwantung Leased Territory and particularly to facilitate production of salt in the Pitzuwo district. The Chinchow-Pitzuwo line will probably be opened to traffic in mid-summer.

## Chinese Financed Railways

For the past ten years there has been considerable interest shown among Chinese in the proposed construction, independent of either Japanese or other foreign capital, of certain railways in Manchuria, especially in southwest Manchuria. Envisioning the economic advantage of purely Chinese railways in Manchuria, a beginning was made several years ago when the construction of a harbor at Hulutao between Shanhaikwan and Chinchow was started. Because of internal disturbances in China, however, what has been done at Hulutao has largely gone to ruin. This port if completed in the future would serve to make the Peking-Mukden Railway and the other purely Chinese lines which might connect with it, entirely independent of traffic from the South Manchuria Railway, and not dependent upon the port of Dairen. The Japanese are keenly aware of this eventuality and it is only in the more conservative Japanese groups that the opinion is expressed that the port of Hulutao, or Lienshan as the station on the main line is called, will not be able to injure seriously the port of Dairen. Hulutao still remains undeveloped. Several new railways, however, in the region roughly between Mukden and Lienshan have been projected by Chinese enterprise, two of which have been completed in part during the last two years.

*Tahushan-Changwu-Chengchiatun Railway.*—This is a line which, as originally projected, was to proceed north and west from Tahushan, a small station on the Peking-Mukden line, to Changwu, where it was to serve as an outlet for the produce from Inner Mongolia. Changwu is almost due south of Tungliao, often termed Paiyintalai, which latter is the western terminus of the Chengchiatun-Tungliao line. Instead of proceeding to Tungliao, however, the new line now projected will continue northeast to Chengchiatun which will made possible through connections between Tientsin, Taonanfu, Tsitsihar, and north, if the Taonan-Angangchi line is extended. This would obviate any use of the South Manchuria Railway for this through traffic as the Ssupingkai to Mukden section would be eliminated. The first section of this new line from Tahushan to Hsinlitun was completed by August, 1925.

Some idea of the importance of this new line may be gained by recalling that it is, in a measure, a partial realization of the Chinchow to Aigun railway scheme contemplated in the past both by British and American capitalists. Immediately, the line will be serviceable to market the produce of Inner Mongolia and southwest Manchuria, but ultimately, when completed, it is bound to open a new avenue to draw North Manchurian produce to China proper by way of Tientsin. Inner Mongolia, not far from the new line, is a potential producer of great quantities of natural soda, while coal is to be found near the railway. Another Chinese line north from Chinchow on the Peking-Mukden Railway to Chengtzutung, a distance of 60 miles, is now under construction.

*Kaiyuan-Taolu-Hailungcheng Railway.*—This is at present a metre gauge line which proceeds from Kaiyuan, north of Mukden on the South Manchuria Railway, east to Taolu, a distance of 40 miles. Whether extension to Hailungcheng is contemplated for the near future will depend upon the Chinese decision as to the continuation of the Mukden-Hailungcheng Railway to Kirin. The Kaiyuan-Taolu line is a purely Chinese enterprise which is not capable as yet of handling very heavy traffic. For the present, not this line, but the Feng-Hai Railway, is of real importance in developing Kirin province.

*Mukden-Hailungcheng-Kirin Railway.*—This line is probably the most important of the several lines in central Manchuria now being constructed independently by Chinese. The agricultural and forest wealth of Fengtien and Kirin provinces, previously referred to, are to be relied on ultimately to finance the line, which is a sort of official-private project. A privately owned coal mine in the vicinity of the huge Japanese mines at Fushun was the inspiration for the building of the first short section of the line, which was continued to Yingpan, a distance of 40 miles. In February, 1927, the new railway was opened to traffic to a point near North Shanchengtzu. Through traffic to Hailungcheng may be expected by summer.

The Japanese have not looked with favor upon the independent construction of this line by Chinese, nor particularly upon the purchase from the United States Steel Corporation of rails for the line. In January, 1927, Consul-General Yoshida of Mukden protested for the Japanese against the Chinese plan to continue the Feng-Hai line to Kirin, on the ground that such extension would make the Chinese line parallel with the South Manchuria Railway, and as such would be contrary to the Sino-Japanese agreement of September 28, 1918, commonly referred to as the "Four Manchurian Railways Loan Agreement."

*Hulan-Hailun Railway.*—Considerable interest has attended the construction, during 1925 and 1926, of the so-called Hu-Hai line, which has served to open to territory that is probably the most productive wheat region of Manchuria. The line, which is financed by General Wu Chun-sheng, through the Tsitsihar Provincial Bank, is a purely Chinese project, and is being built by Russian engineers under the general supervision of Mr. Boris V. Ostroumoff, one time manager of the Chinese Eastern Railway. Rails were purchased in May, 1926, through Suzuki and Company, a Japanese firm, from the United States Steel Corporation to the value of Y.621,000. The new line was opened to through traffic from Hulan to Suihua, about 70 miles, on January 22, 1927. Sungpu, near Harbin, will likely be made the seat of administration of the Hu-Hai line. Immediate extension of the line beyond Hailun may be impeded somewhat by recent difficulties in connection with financing the project.

The Hulan river valley is recognized as a most fertile grain region which, along with the Anta district, has been the mainstay of the produce traffic of the Chinese Eastern Railway. The area immediately to be served by the Hu-Hai line, which runs north from Hulan, a short distance from Harbin, at present is estimated to have a population of 3,000,000, showing that it is by no means as sparsely settled as was commonly thought. Much of the region is now under cultivation and that which lies contiguous will be developed rapidly after the opening of through traffic to Harbin. Formerly the produce from this grain belt found its slow way to market by means of carts, which type of traffic will not be taken over in view of the fact that the new line is standard gauge and the Chinese Eastern at Harbin is broad Russian gauge. Consequently, because of the difficulty of transfer from the new line to the main line of the Chinese Eastern, it is to be anticipated that much of the produce from the Hulan valley will still be carted to Harbin or other points on the Chinese Eastern.

Difficulties have already developed between the management of the Hu-Hai line and that of the Chinese Eastern Railway regarding the issue as to whether Sungpu shall be handed over to the Chinese Eastern Railway management, a demand which has so far not been met, and the connections between the southern terminus of the Hu-Hai line and Harbin *via* a short line of the Chinese Eastern remain broken. The Russians would have preferred the Hu-Hai line to be of the Broad Russian gauge instead of the standard, which is the Japanese. A coal mine has recently been reported near the Hulan-Hailun line.

Aside from the boon which the Hu-Hai line will be to this superior grain belt of North Manchuria, there is the even more significant factor of the likelihood of the eventual extension of the line from Hailun to Mergen, there to connect with a continuation of the Taonan-Angangchi-Tsitsihar line to Mergen. A northeast extension from Mergen to Aigun and Heiho on the Amur river (Heilungkiang) would be a logical and entirely practicable development from the coverging of the Hulan-Mergen and the Taonan-Tsitsihar-Mergen projects, and would effectuate one more link in that long chain of railways contemplated at various times by British, Russian and American financiers. In a Chinese agreement with the Russo-Asiatic Bank in 1916, this entire system for railways in North Manchuria was included by M. Grave, who negotiated the agreement. In passing, it should be noted that this latter agreement is considered by the Chinese, who have financed the Hu-Hai line, to have lapsed.

That the extensions suggested are to be developments of the future is undoubted. The prospect of through traffic from the mouth of the Amur river, navigable by sizable steamers far inland, through the provinces of Heilungkiang and Fengtien provinces, to the Gulf of Pechili by railway, is so replete with economic possibilities as to be certain of eventual realization. Heilungkiang province, besides being of great value as an agricultural region, is rich in gold and coal beds which lie adjacent to the Amur.

## Russian and Polish Private Concession Lines

No survey of the economic bases of new railway construction in Manchuria, however brief, would be adequate which did not give at least brief attention to the numerous short railways which serve private timber and coal concessions between Harbin and Pogranitchnaya along the line of the Chinese Eastern. These are of great economic importance to the main line. With the exception of one branch of the Chinese Eastern Railway from Shihtaohotzu, about 30 versts, near the Pogranitchnaya border, all these are privately owned and constructed to serve private concessions. Among these there are three principal groups, those owned respectively, in whole or in part, by Mr. Kovalsky, Mr. Skidelsky and the Popoffs.

Mr. Kovalsky, a pioneer Polish timber concessionaire whose headquarters are in Harbin, has six short lines, the longest from Imienpo north to his concession, a distance of 70 versts. A second, 30 versts in length, also to the same concession, a third short line from Hantaohotzu north and east, and the others north from Mulin, farther east, serve important timber concessions. Of Mr. Kovalsky's lines 94 versts are the broad Russian gauge, 25 versts narrow gauge, and 8 versts less important cable lines. These are all privately owned.

Mr. Skidelsky's important railway, 60 versts in length, which proceeds north from Mulin towards Mishan, and which is owned in part by private Chinese financiers, at present serves several timber concessions by means of branch spurs. Plans have been made, however, for the immediate extension of the line farther northeast to tap the coal mines which exist near Lake Hanka, the source of a tributary of the Amur river. Adjoining the Kovalsky timber concession at Mulin is that of the Popoffs, who also have a private line. It is here that the newly formed Australian syndicate proposes to establish factories for the manufacture of timber products previously referred to. The Japanese timber concession at Hailin has received attention elsewhere in connection with discussion of the branch Hailin-Ninguta-Tunhua Railway to connect with the Kirin-Tunhua line.

*Chinese Eastern Branch Line Projects.*—The construction of several proposed branch lines to the Chinese Eastern Railway has so far failed of realization, due to the present reorganization of administration of that system. From time to time, however, proposals have been proffered for the construction of the following lines: (1) a Russian broad gauge to take the place of the narrow gauge which now connects Tsitsihar with Angangchi, a distance of 17 miles; (2) a broad gauge line from Anta station to Paichuan, possibly to connect with Hailun; (3) a new broad gauge and extension from Hailin and Ninguta south into the valley of the Hurka: (4) other lines branching north and south from the main line of the Chinese Eastern between Harbin and Pogranitchnaya. There is very little likelihood of any of these being constructed in the near future.

The prosperity of the Three Eastern Provinces since the inception of the Chinese Republic in 1912, during which entire period Marshal Chang Tso-lin has been in control, has rested chiefly upon foreign trade, which has furnished a market for Manchurian produce. But without the network of railways, which now span a rather frail spider-web of communication lines strung from trade vantage points on rivers and seas, soybeans would still be lumbered to market in cumbrous carts; oil would be extracted entirely by hand presses, production in vastareas would be for local consumption, and the standard of living of the Chinese farmer would not differ radically from that of his brothers across the Gulf of Pechili.

Manchuria, which comprises a territory of perhaps 365,000 square miles, only a small fraction of which is under cultivation, which has a population of probably not more than twenty millions, remains one of the richest sections of China, dependent upon railways for future economic development. If the United States, Japan or Germany, instead of the rest of China, were taken as a standard with which to compare Manchuria, adequate reasons would at once appear why new railways were needed on grounds of transportation economics, and that in spite of the obvious fact that Manchuria is China, that Manchurian industry is still quite undeveloped, and that, as such, it cannot support as yet the intricate system of railways which covers the United States.

Manchurian economics has, however, begun the slow transformation from extensive to intensive agriculture, from hand to machine manufacture, and from cart to car transportation, a process which bids fair to preserve for the territory that international reputation which was obtained for Manchuria when two modern wars were fought on its plains. The quantity existence of coal at Fushun and of workable iron mines at Anshan quite naturally suggests the Ruhr. Those who would seek insight into the industrial future of Manchuria well might recall what Pennsylvania coal and Minnesota iron have meant to the United States, and then remember that in Manchuria these essentials of modern industry are found almost side by side.

# The South Manchuria Railway

DR. Henry W. Kinney, who for many years has been one of the most prominent journalists in the Far East, has just published an interesting booklet on "Manchuria and the South Manchuria Railway Company." For those interested in China and Manchuria and the international problems arising out of Manchuria, will find Mr. Kinney's book invaluable. It provides a ready reference to the exact facts with regard to this vast and interesting territory and to the railway which forms its backbone.

We are herewith reprinting several pages from Mr. Kinney's booklet :

To the world at large Manchuria represents a vast area capable of furnishing it with immense quantities of agricultural, forest, mining and other products. In its relation to the world Manchuria is a new country. Thirty years ago it had only one, relatively unimportant, Open Port, Newchwang, through which its foreign trade was conducted. Since then this country has been opened, first by Russian activities ; then by Japanese development. Railways have been constructed which make possible utilization of enormous tracts of heretofore unproductive lands of marvellous fertility. During the last twenty years the population has increased from 12,000,000 to 22,000,000. Modern industries have been established on a large scale where a few decades ago only the most primitive production methods were employed in a very limited way. And still the resources of Manchuria have not yet been even half developed. The march of progress continues apace. New railways cause the settlement of new regions. New industries spring up. Production increases, and the number of people who are able to derive a livelihood and prosperity from Manchuria becomes greater with each passing year.

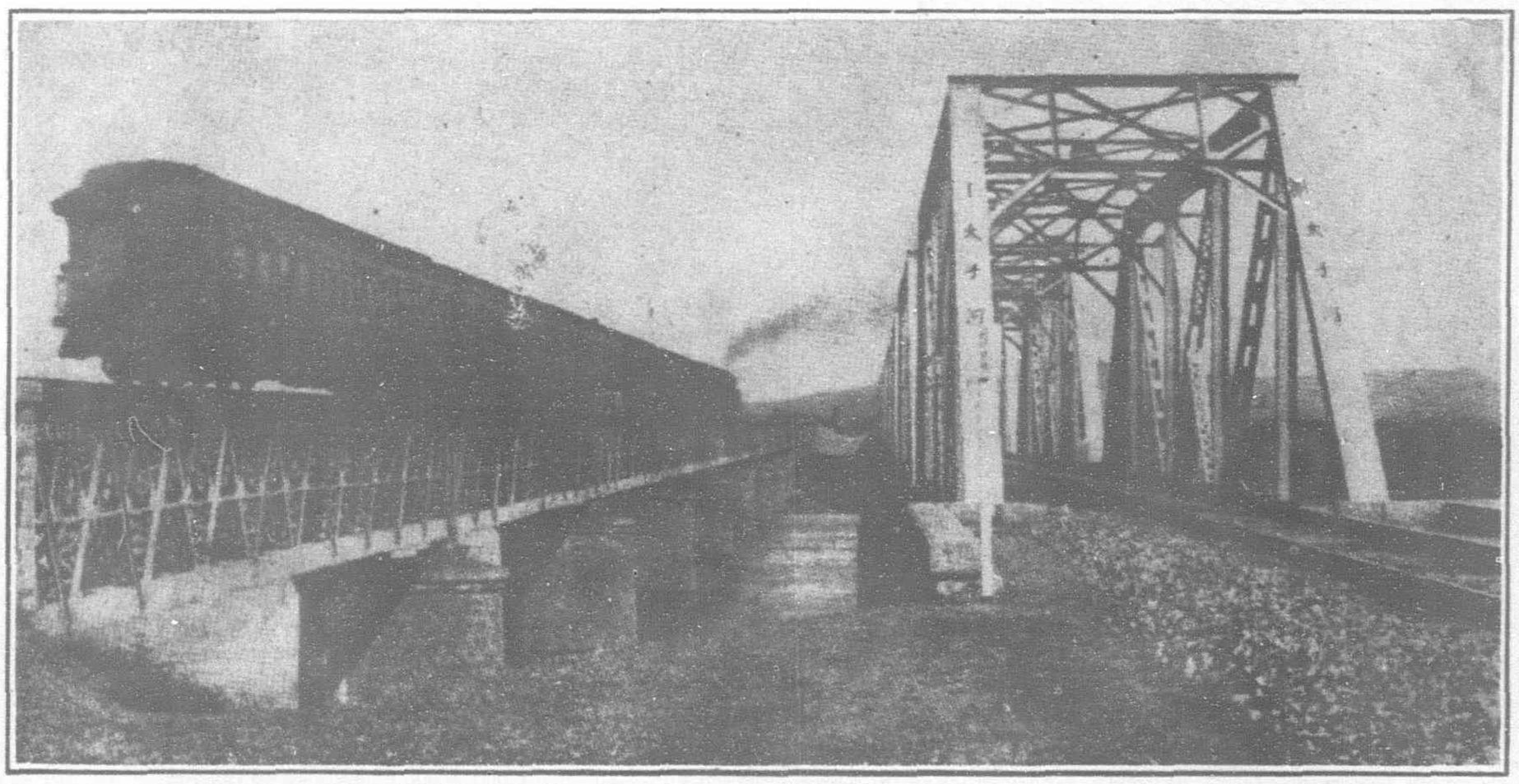
The View of Maniwadori, Mukden

The greater share of the credit for this contribution to civilization may be claimed by Japan, which, after the Treaty of Portsmouth, in 1905, took over the only partially developed and principally military Russian enterprises in Manchuria and embarked on the policy of economic development which has made Manchuria the most prosperous and peaceful region in China. In this work the South Manchuria Railway Company has been the principal factor.

## Not Conquest, But Development

The activities and aims of the Japanese in Manchuria have from time to time been the object of suspicion and misapprehension abroad. Still, the reasons for Japan's interest and her ambitions in Manchuria are easily understandable. There is no question of conquest, nor even of colonization on a large scale. From the very beginning Japan decided to work out her future by means of industry and commerce—not by war. She must make the money which she needs to pay for the foodstuffs which she must import to feed her rapidly increasing population. She will do this by developing her industry and commerce. In these days of strenuous world competition, she must seek the markets where she may enjoy the greatest natural advantages. These lie principally in eastern Asia, and Manchuria furnishes one logical field. Thought of conquest is out of the question for many reasons : It would be contrary to Japan's established policy of peaceful co-operation with the other Powers, of which she gave a significant demonstration at the Washington Conference ; it would cause a hatred of Japan on the part of all the rest of China which must result in the loss of her most important and promising market—so the game would not be worth the candle ; finally, it has been conclusively demonstrated that Japanese employed in a small way as farmers, small merchants and the like cannot compete with the Chinese, whose standard of living is much lower and whose energy, patience, and thrift are inexhaustible.

So Japan must seek to gain from Manchuria by assisting the Chinese to develop the country and by showing them the way. This she has done and is doing by building railways, by showing them better farming methods and by finding new markets and processes by which the utility and value of the products are increased. As a result Manchuria is becoming in rapidly increasing degree a vast storehouse of the raw materials which Japan needs for her industries at home. It is also becoming a greater market in which Japan can sell her manufactured goods, as the buying power of Manchuria increases with the increase of population and with the prosperity of the inhabitants.



At Left Bridge Built by the Russians and Repaired by the Japanese. At Right Bridge Built by the Japanese

## A Civilizing Force

To some extent Japan has profited directly from her activites in Manchuria, through profits from railways, mines, and industry and commerce, but, on the whole, the results have as yet been far from commensurate with the money and effort expended, and this is largely due to the fact

that Japan's principal instrument, the South Manchuria Railway Company, regards itself as a civilizing force rather than as a mere commercial enterprise for profit, and devotes huge portions of its earnings to cultural and eleemosynary work, by building and maintaining numerous modern schools, hospitals and the like which can yield neither direct nor indirect financial returns. The value of this is, however, greater than that which it intrinsically represents, for it serves a valuable purpose by instructing the Chinese in the arts and means of modern civilization. An example is being provided which the Chinese are showing greater and greater inclination to follow, as is shown by the tremendous improvements of their own towns made through their own efforts. If the freedom from war which Manchuria has enjoyed, almost without interruption, for over twenty years, continue, it is certain that this region, which was until recent years considered by the inhabitants of China Proper as a wild and barbarous country, will become to them on a magnificent scale a demonstration of what may be done in the rest of China, an example which it will be well to follow.

## Political Position

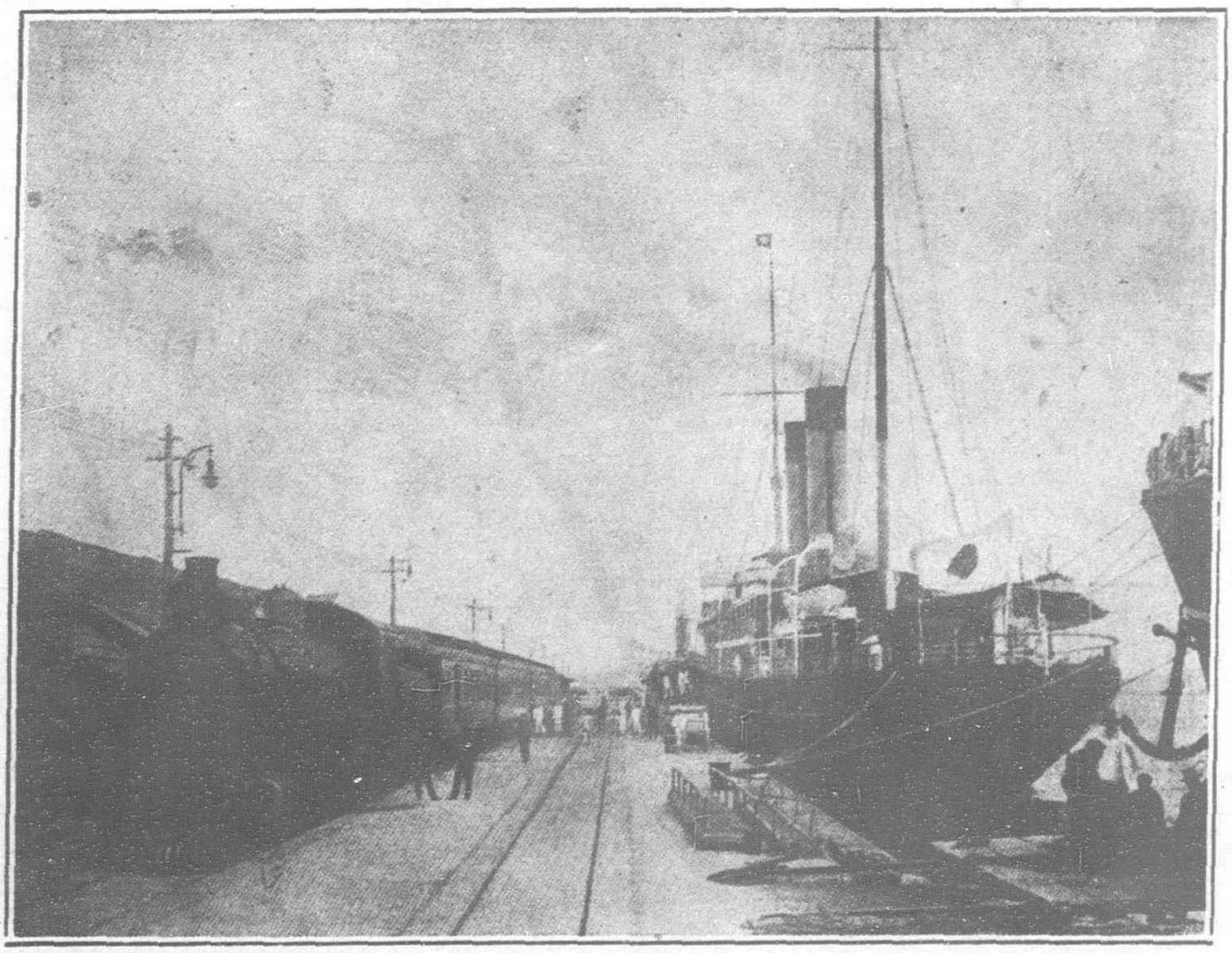
Thus the aims of Japan in Manchuria are preponderatingly economic; yet the strategic considerations cannot be overlooked. Japan is well aware of the fact that if dangers shall ever threaten her, such are most likely to develop on the continent of Asia. For centuries the Japanese have known that potentiality of peril exists in the geographical position of Korea, "the dagger pointed at Japan's heart," and the strategic necessity of keeping that peninsula free from danger of hostile occupation is indisputable. It is thus to the interest of Japan, both for economic and military reasons, that Manchuria remain peaceful and undisturbed in Chinese hands. Whose these hands be is relatively unimportant, as long as they be strong enough to maintain peace and order. The misconception current abroad that Marshal Chang Tso-lin is a virtual puppet of Japan cannot but be amusing, and a little galling, both to the War Lord of Mukden and to the Japanese. The assistance which he gave Japan as a leader of an irregular cavalry force during the Russo-Japanese war has been appreciated, as has also the fact that he has been strong enough to keep war from invading the Three Eastern Provinces and has thus made it possible for industry to develop in a way which has been impossible in the greater part of war-torn China Proper. But the Manchurian government has given Japan nothing for which it has not been generously, often over-generously, paid. A healthy and laudable nationalistic spirit has been developed which prompts the leaders in Manchuria to wish to undertake the work of development themselves, where they are able to do so. In fact, far from "taking orders" from Japan, the Manchurian government often stands in the way of the realization of Japan's ambitions, as, for instance, by refusing to allow Japanese to lease land, although this right has been assured by treaty. It is the policy of the Japanese Government, however, to remain on terms of friendly co-operation with those who rule Manchuria, and to assist them, as far as this may be done without encroaching on the principle of non-interference with internal affairs of China. A strong, forward-looking government of Manchuria is to the best interests of Japan. The portion of Manchuria which Japan actually controls—the Leased Territory, with about 1,300 square miles; and the Railway Zone, of about 100 square miles—is infinitesimal when compared with the total of about 382,000 square miles which comprise the Three Eastern Provinces. Japan's military force in Manchuria is small, some 7,500 men, though by treaty she has the right to station double that number there. In view of the widespread operations of bandits, often in large bands which attack even small towns, this force is by no means overlarge. Japan at first had a naval station at Port Arthur but she now maintains no naval establishment there.

The development of Manchuria's resources, accompanied by an increase in its population, which will become prosperous through wresting rich products from a hitherto largely idle soil, is the aim of Japan in Manchuria. This will give her raw materials for her factories, and the great hordes of immigrants from Shantung and Chihli who settle as pioneers in Manchuria every year, then rising from empoverished coolies to prosperous farmers, are creating an increase in the world's buying population from which not only Japan, but all commercial nations will benefit. An auspicious beginning has already been made. Merchants of many nations are already operating and profiting from the great work of civilization which is being carried on and for which Japan, and her principal instrument, the South Manchuria Railway Company, may justly claim the greater measure of credit.

On September 5, 1905, Japan entered into possession of the rights and properties formerly held by Russia in Manchuria. Besides the lease of territory, these consisted mainly of the railway between Port Arthur and Changchun, with comparatively light rails, poor grades, and no rolling stock; the town of Port Arthur, which had been badly damaged in the siege; a mere nucleus of the City of Dairen and a less than half-constructed and rather shallow harbor; and four very small railway towns along the line. From this modest beginning she built up the efficient and modern railway system, the large and flourishing railway towns, with their hospitals schools and hotels; and made Dairen the second port in China in point of volume of direct foreign trade.

On June 7, 1906, the South Manchuria Railway Company was established through Imperial Ordinance, to manage the railway and the railway area, as well as the many allied enterprises which gradually became attached thereto. It was capitalized originally at 200 million yen, of which the Japanese Government took over half of the capital stock as payment for the property which it turned over to the Company. The rest was offered for public subscription. It was not regarded as a good investment by the public which had seen the Russian Government pour into this enterprise million after million without profit, and the Chinese, to whom Japan offered the privilege of taking over any part of the stock offered for public subscription, declined the offer flatly. It was, however, regarded by the Japanese, whose patriotism had been thoroughly aroused during the war, as a patriotic enterprise. The shares were over-subscribed 1,066 times, and to-day only Japanese own such, and they have enjoyed the agreeable surprise of receiving good returns on their investment. In 1920, the Company increased its capitalization to 440 million yen, the Government again taking half by taking over two bond issues, of 6,000,000 pounds sterling each, floated in the London market. Of the remaining shares 160 million yen have been subscribed by the public, and the remaining sixty million yen remain unissued.

The Government General of Kwantung was established September 1, 1906, and in April, 1919, the



Train and Steamer Connection at the South Manchuria Railway Wharves, Dairen

Kwantung Government Office was made to take over the civil administration and policing of the Leased Territory and the Railway Area. The Governor is also charged with supervision of the South Manchuria Railway Company. The officers of the latter are a President and a Vice-President, both appointed by the Japanese Government with Imperial sanction, and a Board of Directors appointed by the Government from among the shareholders. The company employed (March, 1926) 9,674 officials, 28,847 employees, and 127 persons not on the regular staff, totaling 38,648, of whom 16,326 were Chinese. In addition to these, about 13,000 day laborers were employed, nearly all of whom were Chinese.

The railway system which the South Manchuria Railway Company took over, in 1906, was in a sorry state. All the rolling stock had been withdrawn by the Russians or destroyed and most of the bridges had been blown up during the Russian retreat. The main line consisted of a single track from Port Arthur to Changchun, and many of the grades were quite steep. At the beginning the track was changed from the five foot Russian gauge to the narrow gauge used by the railways of Japan, in order that rolling stock brought from Japan might be employed, but soon the entire system was changed to the standard (4'8½") gauge used by the Government Railways of China, and rolling stock was imported. (It is interesting to note that while the S.M.R. floated its loans in England, the bulk of its purchases of equipment was made in the United States, the percentage of direct imports from that country being 67 per cent in the 1907-8 period and averaging 31 per cent during the period 1907-20.) The Russian 65 pound rails were replaced with 80 and, later, with 100 pound rails and the main line double-tracked as far as Kaiyuan. It will soon be double-tracked all the way to Changchun. The grades have been leveled and the roadbed improved. As a result the S.M.R. has provided the best equipped railway system in eastern Asia. It has followed entirely American models and the entire service is similar to that which is found on the best roads in the United States.

The line between Antung and Mukden was originally built as a light military railway by the Japanese troops during the course of the war. Through treaty with China, the S.M.R. was allowed to rebuild this line, which was done by relocating it in many places, building tunnels and reducing grades, effecting a saving of over 18 miles.

The lines owned and operated by the S.M.R. are as follows :

| | | |
|---|---|---|
| 1. | Dairen-Changchun (main line) ... ... | 438.5 miles |
| 2. | Mukden-Antung (Suchiatun-Antung ... | 161.7 |
| 3. | Port Arthur-Dairen (Port Arthur-Chou-shuitzu branch) ... ... ... | 31.6 |
| 4. | Yingkou (Newchwang) branch (Tashih-chiao-Yingkou) ... ... ... | 13.9 |
| 5. | Yentai colliery branch ... ... ... | 9.7 |
| 6. | Hunho-Fushun lines ... ... ... | 39.4 |
| | Total ... ... ... ... | 694.8 miles |

## Chinese Railway Lines

It should be noted that while Japan has greatly improved, by double-tracking, leveling etc., its own lines, it has during the twenty years of its operations extended the territory covered by its lines by only a few miles. It has, however, assisted the Chinese by building railways for them, partly by furnishing loans and partly by doing the actual construction work, which have greatly extended the area reached by railways and have thus contributed to opening of heretofore uncultivated territory. All of these lines (with the exception of the Kirin-Changchun line, which is managed by the S.M.R. under a special contract) are owned and operated by Chinese, with the Japanese interests represented on each line only by two or three officials whose duties are entirely supervisory, without power of initiative, the management being under the Department of Communications at Peking. The assistance thus given by the S.M.R. has not been remunerative from a strictly financial point of view, as most of the contracts have been less advantageous than those held by other foreign railway builders in other parts of China, but they have been justified in that they act as feeders to the main line of the S.M.R. These lines are as follows :

| | |
|---|---|
| Ssupingkai-Taonan (with Paiantala branch) | 264.5 miles |
| Taonan-Tsitsihar (Anganchi) ... ... | 141.7 ,, |
| Kirin-Changchun ... ... ... ... | 79.3 ,, |

During recent years the Chinese have awakened to the importance of railways and the possibility of profits in constructing such themselves, and they have built and are building several new lines. Among these the most important are the eastward extension of the line from Kirin to Tunhua, which is being built for them by the S.M.R. ; a line from Hulan, a point of the Sungari River opposite Harbin, northwards to Hailun, which may in time be carried on to the Amur River ; and a line from Mukden in a north-easterly direction to Hailungchen. The two latter are being built by the Chinese themselves. Other railway lines are being more or less definitely planned.

## Link in World Travel

The S.M.R. lines are of predominating importance, not only as they furnish the main line traversing the rich central plains of Manchuria and thus give transportation for exports and imports of the entire region, but also because they constitute an essential link in the rail connection between East Asia and Europe, which is becoming increasingly important and popular with travelers as arrangements progress between the various railway systems concerned which improve the through service materially. Thus travelers between Europe and Japan travel over the S.M.R. lines between Antung and Changchun, while those from Shanghai and other points south travel over the line between Dairen and Changchun, where connection is made with the Chinese Eastern Railway. Travel from Peking, Tientsin and other points in North and Central China connects with S.M.R. lines at Mukden for transportation to Changchun.

An idea of the saving in time which may be effected by traveling by rail, as compared with the time consumed in traveling by sea, may be had from the following :

Tokyo to London :

By rail 16 days, fare Y600 ; by steamer 50 days, fare Y1,100

Shanghai to London :

By rail 16 days, fare Y600 ; by steamer 41 days, fare Y1,050

## Growth of Traffic

While the railway under the Russian regime was conducted mainly for military purposes, its function to-day is entirely economic. As Manchuria has developed, increasing in population and productivity and opening rapidly to foreign trade, the train service has increased in proportion. Fast expresses, with luxurious observation and dining cars, and Pullman sleeping cars, carry the principal first and second class passenger traffic, while numerous second and third class trains, with diners and sleeping cars, handle the slower traffic, especially the many thousands of Chinese who immigrate into Manchuria every year. As the traffic has increased, better equipment has been provided and schedules gradually shortened until to-day when the express makes the 436 mile run from Dairen to Changchun in 12½ hours. The increase attained in business may be seen from the following figures (amounts given in yen) :

| | Passengers | Passenger Receipts | Tonnage of Goods | Goods Receipts | Total Receipts | Direct Expenditures |
|---|---|---|---|---|---|---|
| 1907 ... | 1,512,231 | 3,594,239 | 1,486,434 | 6,160,274 | 9,768,887 | 6,101,615 |
| 1926 ... | 8,445,271 | 14,956,172 | 16,253,250 | 89,080,157 | 106,491,136 | 35,830,004 |

(The total includes, also, miscellaneous receipts)

The principal goods transported are soya beans, bean cake, and other staple products, and the Company's Fushun coal. The fact that the export traffic is far greater than the import traffic constitutes a drawback. The profit derived from passenger transportation comes almost entirely from the third class traffic, the expresses being operated at a loss.

It will have been seen that, outside of the main part of the original roadbed, practically the entire equipment of the S.M.R. has been provided by the Company itself. In the beginning it was necessary to import from abroad nearly all the material needed, but the Company is now able to construct a large part of its equipment in its own shops. From Russia Japan inherited only two small repair shops, but to-day the S.M.R. possesses two large plants, one at Shakakou and the other at Liaoyang. The former covers an area of 9,972,000 square feet of which 504,000 feet are covered by offices and shops. Here locomotives, cars and all other principal equipment needed by the railway, except rails, and be constructed. The shops are capable of repairing simultaneously 27 locomotives, 36 passenger cars and 130 freight cars, while at the same time constructing and repairing other railway equipment, mining machinery etc. An electrical repair shop has been established at Dairen.

The railway equipment to-day comprises 425 locomotives, 430 passenger cars, 6,642 freight cars and cabooses etc. The stations total 128.

# The Development of Hosiery Knitting in Shanghai

*By Charles J. Ferguson*

SHANGHAI has become the most important hosiery knitting center of China. Ten years ago it boasted only one mill equipped with automatic knitting machinery. To-day it contains more than two dozen modern hosiery mills. In the course of time China, with its four hundred millions of people, may become one of the largest hosiery consuming countries, and Shanghai one of the largest hosiery producing cities in the world. In view of its growing importance, the following brief sketch of the development of hosiery knitting in Shanghai during the past decade may prove of interest to the knitting trade of other countries.

## Started Knitting 25 Years Ago

From time immemorial the Chinese have been accustomed to wearing socks made from coarse woven cloth. Even to-day in rural districts the bulk of the Chinese who wear any hosiery at all wear these crudely fashioned cloth socks. It was not until about 25 years ago that China produced its first knitted hosiery. After 1900 considerable numbers of circular hand machines were installed and a hand knitting industry was developed on a large scale. This industry continues to exist although, as is pointed out in the course of this article, it is giving way to more modern methods of manufacture.

Hongkong was the first city in China to break away from hand machines and to establish hosiery mills equipped with automatic power driven machinery, housed in modern factory buildings and operated on an up-to-date industrial basis instead of as a home industry. This development occurred about 15 years ago when a number of American machines were put into operation.

In 1914, a group of Hongkong hosiery manufacturers branched out and established the first modern mill in Shanghai, known as the Lee Wah Knitting Mill, and equipped with about two dozen American machines. The year 1916 saw the establishment of another mill financed with Hongkong capital and equipped with about two dozen American machines; *i.e.*, the Ching Po Knitting Mill. From this time on, however, the development of new mills in Shanghai, was carried on by local merchants and capital.

## Large Increase Since 1917

The year 1917 is the most important mile post in the history of the Shanghai knitting industry. Three of the largest hosiery mills operating to-day were established in that year; they are the Pioneer Knitting Mill, China Cotton and Silk Works, and the Foot Ease Hosiery Manufacturing Co. Their initial units of machinery were small. The Pioneer Knitting Mill and the China Cotton & Silk Works adopted the Scott & Williams Model G machine and produced cotton half hose with mock rib tops. The Foot Ease Hosiery Manufacturing Co. installed both Scott and Williams and Banner machines.

To-day these mills are equipped and housed in as modern fashion as most mills in America. The Pioneer Knitting Mill has a production of 1,500 doz. pairs of mercerized half hose per day. It mercerizes and winds all of its yarn, dyes and bleaches the hosiery in modern dyeing machines, drys and shapes it on aluminum drying forms, presses it in hydraulic presses, marks it with American transfers, and packs it in boxes made in its own box department. The equipment in the China Cotton and Silk Works and Foot Ease Hosiery Manufacturing Co. is equally modern and complete.

In 1918, due no doubt to the success of the three mills organized in 1917, at least six more knitting mills were established in the Shanghai district. Notable among these is the Kong Tsou Knitting Mill, which though it started operations in a small Chinese dwelling house on a very modest scale, is to-day erecting a modern brick and concrete building which will accommodate a considerable number of machines.

During the period 1919 to 1921, few new mills were established due to the acute business depression which affected China in the same measure that it did all other parts of the world. During these years, however, the 1917 and 1918 mills made important strides in consolidating their organizations and increasing their efficiency of operation. Hosiery of better quality and appearance was placed on the market.

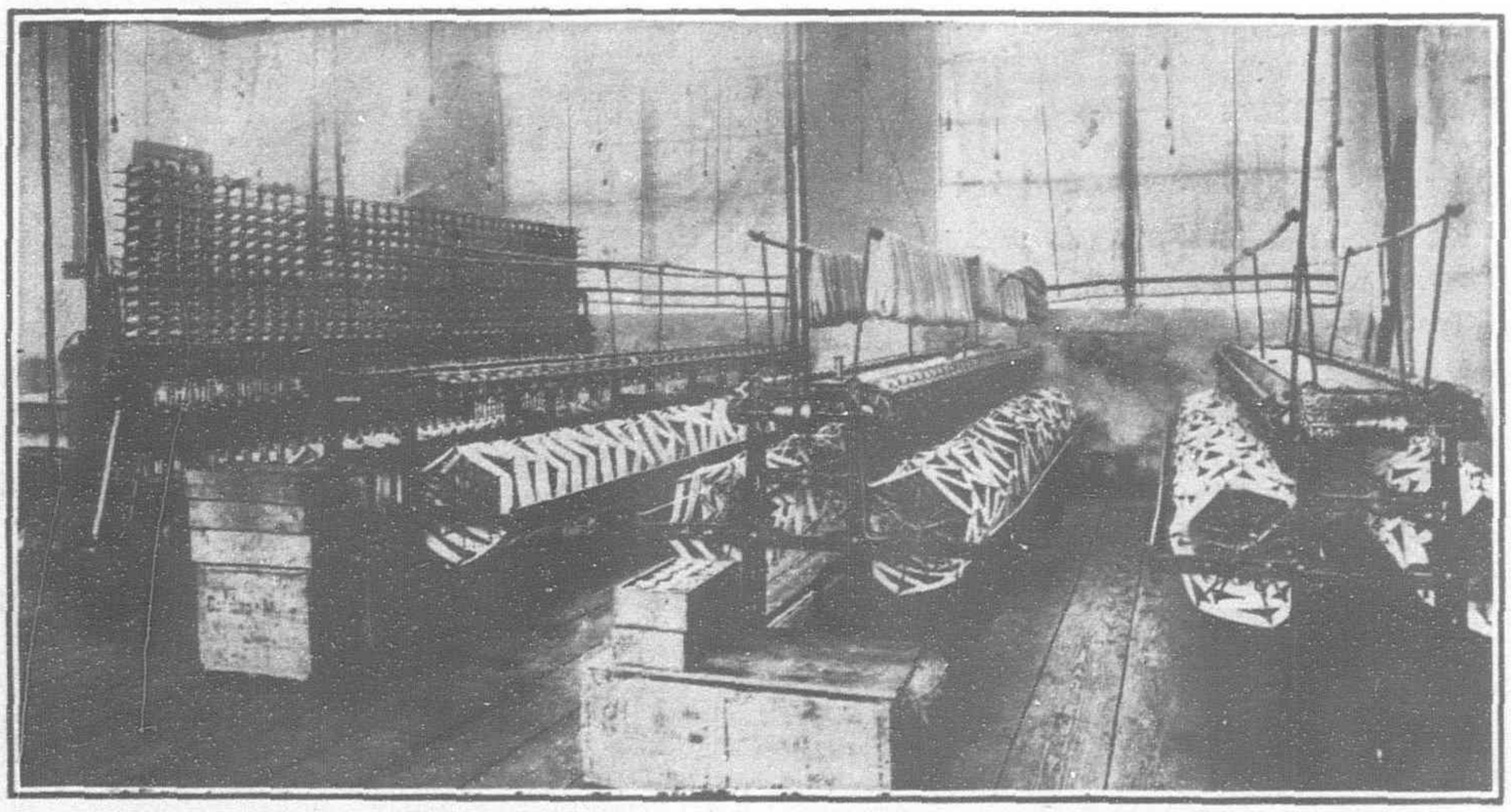
## Adopt Finer Gauge Machinery

During the period 1921 to 1924, general business conditions having improved, a considerable number of new mills were organized, including the Fu Wah, Great China, Tsing Wha, Yung, Yang, Hong Shing, and C. K. Hing Knitting Mills. Generally speaking, these mills adopted finer gauge machinery than had before been employed; whereas 3½-in., 176 needles had been almost universally used in the past, machines with 188, 200, and 220 needles were now commonly installed. In this period very few mills were found knitting cotton hosiery. The use of mercerized yarn became general, the popular demand being for lighter socks of better quality. The majority of the newly established mills employed Scott and Williams Model B5 machines.

## Progress in Silk Hosiery

During this period, the China Cotton & Silk Works and the Pioneer Knitting Mill made forward strides in the manufacture of silk hosiery. Model K and B5 machines were used for producing high-grade silk socks and stockings. Many problems had to be worked out for, in addition to knitting and dyeing, these mills were obliged to do their own silk throwing and winding. At first this hosiery was produced principally for the local foreign market, but later these mills extended their sales to nearby export markets, such as Java and the Straits Settlements, where there exist large foreign communities.

Silk hosiery produced on hand machines retained its hold on the Chinese markets due to the lower prices at which it could be sold, and to the fact that hand machine



**The Winding Machines in a Shanghai Hosiery Mill**

manufacturers were able to produce styles acceptable to Chinese buyers. The superior quality of the hosiery offered by the China Cotton & Silk Works and the Pioneer Knitting Mill, however, and the fact that their styles were similar to articles imported from America won over foreign business.

## Hand Mills Change Over

From 1921 to 1924, there was evident a growing interest on the part of hand machine mills in automatic machinery. The writer when trying to interest hand mills in more modern machinery had usually met with arguments such as, " I have been operating hand machines successfully for years. They require no electric power or transmission. They are so simple of operation that my old mother as well as my small grandchildren can run them. They earn enough to keep me and my family well clothed and fed. Why should I invite worry and trouble by installing your modern machines ?"

Some of the mills which held these views now began installing their first units of automatic machines. One old-fashioned hand mill, for instance, commenced by installing a looper. It was belted to an overhead shaft which was in turn belted to a large wooden pulley to which was attached a handle. With characteristic Chinese patience coolies turned this handle hour after hour. It was not long, however, before this mill installed three automatic hosiery machines and a motor.

During the past two years, there has occurred an interesting and important change in the style of men's hosiery. We have followed the progress of Chinese hosiery from mock rib to real rib half hose, and from coarse to finer gauges. The latest tendency has been the substitution of three-quarter length stockings for rib top socks.

The trousers worn by Chinese men are flappy. When a Chinese who is wearing half hose crosses his legs, it is difficult to avoid exposing the top of his socks. A stocking reaching to the knee and supported by an ordinary round garter does away with this difficulty, and has been increasing in popularity among all classes of Chinese. These stockings usually have a welt about 1½-in. long. The Model K Machine is admirably adapted to the production of this style of stocking and has been generally adopted by the knitting mills for producing this new style of hosiery.

Chinese women also wear trousers, and knee-length hosiery has long been in favor with them. There has never been a demand for full-length stockings among them because their trousers make a long stocking unnecessary.

## Full-Fashioned Products

Generally speaking, the years 1925 and 1926 mark the installing of additional equipment by the older mills, and the organizing of new mills to produce knee-length hosiery. Another important development during this period, however, has been the installing of the first full-fashioned knitting machinery in China. German equipment has recently been put into operation by both the China Cotton & Silk Works and the Foot Ease Hosiery Manufacturing Co. The stockings produced on these machines are for foreign consumption, both local and export. It is unlikely that any considerable market can be developed at present among Chinese women for full-fashioned stockings because, generally speaking, their legs are small and undeveloped and can be sufficiently well fitted with seamless hosiery.

Shanghai has grown to be the hosiery knitting center of China. Although Hongkong had a start on Shanghai, its industry has made no great advancement in the last ten years. During this period, however, more automatic hosiery machines have been installed in Shanghai than in Hongkong and the rest of China combined. Some mills have been established in Hankow, Tientsin, Mukden, and other cities of China. When normal political and trade conditions take the place of civil wars and industrial depression, which are now the rule in China, there will doubtless be a further growth of knitting in some of these cities, although there is no reason to expect that any of them will seriously rival Shanghai.

## Increasing Demand for Hosiery

In spite of the present adverse political conditions, the demand for knitted hosiery in China is steadily increasing. Among the reasons for this continual increase, in the face of adverse conditions, are the following :

(1) Civil wars and political chaos have caused increases in the cost of living which have, in turn, made necessary higher wages with a proportionate raising of the standard of living. Knitted hosiery now falls within the buying power of a large number of Chinese than ever before.

(2) Knitted hosiery has necessarily received widespread advertising through the fact that it is generally worn by the military and student classes which are so conspicuous now throughout the country.

(3) The mills are paying much more attention to the advertising of their products and to the soliciting of business in sections of the country to which they have not paid attention in the past.

(4) The mills have radically improved the quality and appearance of the hosiery they produce without appreciably increasing its price.

(5) There is now available a larger number of trained knitting machine operators and fitters than ever before ; although it should be observed here that this number is not yet wholly adequate, and that the problem of obtaining skilled fitters remains one of the greatest difficulties with which the knitting mills have to contend.

(6) Machine manufacturers in America and their representatives in China are now well organized to give new mills full assistance in starting up and maintaining their machinery.

Referring to the accompanying illustrations, Fig. 1 shows hand machines in the Hong Sing Knitting Mill, Shanghai. This mill has recently installed its first automatic machinery in an adjoining room. The machines shown in this photograph are built in Shanghai and sell for about $20 each. Note that the silk used on these machines has not been twisted. Individual ends of silk are being fed from bamboo bobbins. The porcelain saucers are intended to prevent the silk from catching against the sides of the bobbins. This mill is now operating modern twisters and coners.

**Hand Machines in the Hong Sing Knitting Mill, Shanghai**

The roomful of Model B5 machines in a Shanghai mill, shown at Fig. 2, produces about 1,500 doz. pairs of half hose a day. The machines are 3½ in., 176 needle, and two ends of 42/2 ply mercerized yarn are used throughout the socks. The yarn is imported principally from Japan.

Four members of the directors and staff of the Pioneer Knitting Mills were educated abroad; one of the directors in America, the mill manager in England, his assistant in Germany, and the mill superintendent in France.

# Beet Sugar Development in Manchuria

*S. G. Ruegg*

THE story of beet sugar in Manchuria is a long drawn out battle with difficulties such as frosts, aridness, political disturbances, defeated promotions, persistent attempts and negotiations stretched over a period of years and yet withal, it is a story of signal triumph. With world markets down, with cheap cane sugar coming in from the southern ports, with a discouraged farmer class because of the financial difficulties entailed by the Chinese revolution, one does not have a very pretty background with which to start. Our visit in Mukden came as the days of the old year were just drawing to a close with two feet of snow, a thermometer one above zero and yet with warm noons and the picture of a whole crop of beets on hand, not a ton of which had been worked up on account of delays, and the refinery working up large quantities of raws from Java which apparently could not endure the wait of time which would deteriorate the quality.

Manchuria is the most northern province of China and borders on Siberia. It looks and acts like parts of Canada in the winter time. The railroads were congested with the movement of troops, for General Chang Tso-lin who controls three northern provinces was using this as a base for sending forth his troops and Mukden or Fengtien, as the Chinese call it, is a great rallying center. It now has a population of 168,718 and the labor market is ample as there are Russians and Japanese. It was the place where the great battle was fought between Russians and Japanese some years back.

The government has a large experiment station here of 400 acres where much has been done in the line of planting trees and vegetables, flowers and other plants. At present things are all slowed down for reasons already mentioned.

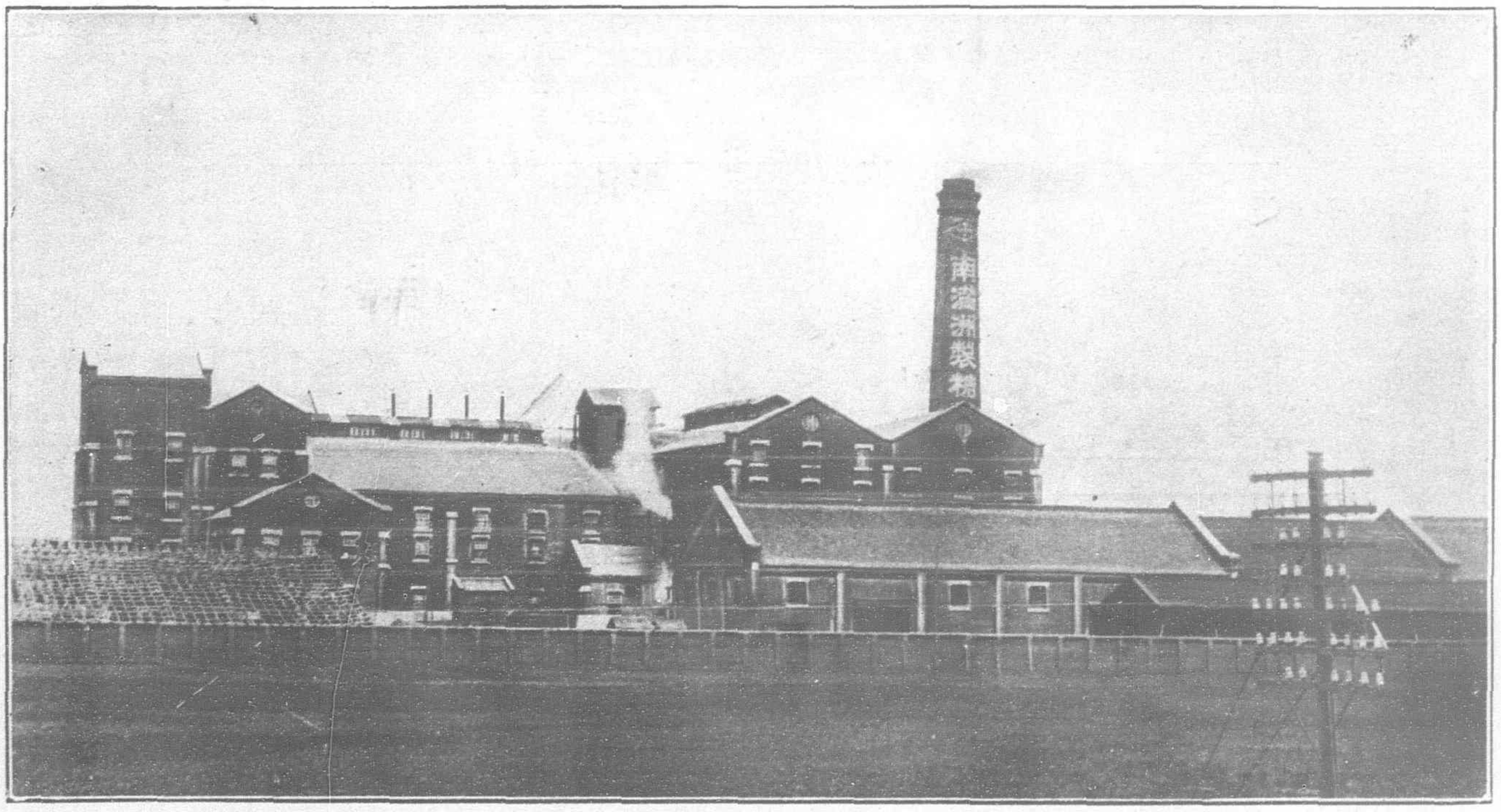
The experiments with beets in the north were started because it was difficult to get sugar from the south. Transportation is always the thing that works for progress whether transportation of thought or material. South China raises cane and has a number of provinces where sugar is produced in a primitive form. This is a story by itself. There being no rail connections between the north and south, beet men turned their eyes to the north.

Nor was it the Chinese that began the experiments in beets. In China the dragon and the wall predominate. These two emblems epitomize the spirit that pervades this ancient land. The dragon, an inconceivable monster and yet very real in the imagination, has dominated this ancient land for ages. He is on watch fobs, door knobs, on embroidery, on brass and we saw one on the catafalque of a funeral with a man-sized head and bulging wiggling eyes and a wagging tongue. The dragon always has represented fear, ignorance, tradition and the devil of difficulty, while the wall has represented complacency, self satisfaction, inertia, a pacifist attitude.

The Chinese apparently have never been able to lift themselves up with their boot strings. Missionaries and government officials say that the impact of the past with its dragon powers, the wall with its penetrative and conquering presence is so great that China sooner or later brings every thought and idea into captivity when one resides in this land any length of time. It was therefore the Poles who first came here with the beet idea to wedge it in amid the fetid agricultural conditions. They were the agents that came with Russians who built the Chinese Eastern railway through this upper province to save 500 miles. They got a concession from the Chinese and the reader may remember that this was the basic cause of the Russian-Japanese war in which the Japanese sought to stop this "peaceful penetration."

The beet was planted the forepart of the century and the first recorded experiments are reported to have been in the year 1909. Russian seed was used exclusively and after the political disturbances German seed became popular. A sugar factory was established along this Chinese Eastern railroad as the Russians were anxious that every form of activity from cathedral to a cow barn should prevail. But the factory started with insufficient capital. It had some Japanese machinery, had a capacity of 350 tons a day and raised a fair portion of beets but never produced sugar on a commercial scale. It is one of these first adventures which has spurred others on to higher achievement. When the payments fell due the company having no income the whole business went by default and the last report had it that they would dismantle the factory and use some of the machinery elsewhere.

Beets were raised around Harbin which is the junction point of the Manchurian railway and the Siberian railway. The reader may know that the late Czar built the Siberian railway to give him an out-reach to the Far East and Harbin has been a great junction point and is a striking center for commercial and agricultural




**Mukden Beet Sugar Factory of the South Manchuria Sugar Company, Limited**

activity. Here beets were raised successfully in which 1 mow raised 78 kwans of beets with a sugar percentage of 15.34 per cent. The Japanese were helpful in this also for they have always been scientific since they have adopted western ideas and civilization.

While this abortive attempt was made along the line of the Chinese and Eastern railway, Chao Er-shun was military governor and he tried to raise Chinese and Japanese capital to build a factory at Mukden in 1905, but the blend of the two races upset the original plans. Experiments had been carried on with beets but these ceased, only the province of Changchun carrying them on at the close of the first decade of the century.

It was in 1913 that the leaders of the Manchurian railway revived the interest in beet sugar. Railways have done much in America along this line just as the promoters of the Oahu railway in Hawaii after the areas on their line lying fallow so that cane products might become feeder to the road. The western railways in America have often been prime promoters of beet sugar and as the Japanese were manning the Manchurian railway they at once took a lively interest. The main line extends from Harbin to Dairen, a port, while another section goes into Korea.

The Japanese, by the way, have gone up into this Manchurian region by the thousand, and the consular reports show that there are 917 corporations owned by Japanese that operate in these regions. You will readily understand that Japanese are always constructive in their programs and they were the first ones to penetrate here with their railway and instituted a number of experiment stations. They found, for example, that the rainfall extended over three periods—the first one, April, May and June; the second period, July and August, and the third period September and October. In the first period the rainfall was 9.7 inches, in the second 18.8 inches, and in the third 10 inches, a rather fair distribution. It was most abundant during the growing season of beets. The temperature in the first period was 10.7°C, in the second period 11.4° and in the third 16.5°, showing a hot period during maturing time, probably too hot on some days.

In the results they found sugar tested around 15 per cent. raising 78 kwan per mow. This put Manchuria about third in production for among the beet producing countries Belgium produced 80.26 kwan, Sweden 69,36 kwan, Germany about 84 kwan, with Russia at the bottom with 37.96 kwan. The beet revivalists used these figures all over the farm areas and convinced the farmers that there was a fertile field for real advancement.

Again it was shown that the beets brought $81.54 (Mexican) for a given area; the cost of production was $64.32 which left a net profit of $17.21. Soy beans, for example, brought $41.16 and cost $40.39 to produce. Labor was cheaper in Manchuria than in Japan. The figures showed that beets only brought about $2.50 gold while in Hokaiddo, Japan, it was $3.40 gold for the same amount. Figures were shown that sugar in Formosa cost $15 to produce while in Manchuria it could be put out for $10 and these various incentives gave the beet prophets a splendid leverage as they launched the new industry in the northern province.

It was not, however, till 1916 that any headway was made in getting the sugar factory started. The Germans had put in the machinery at the first factory and never received their money for this one and it was only through the support of the Osaka Iron Works and the help of the workshops at Shahokon that the work was started on the upward road. The work on the factory was started in April, 1917, and they made a record job of its completion, finishing it in September and beginning work in October. With cheap labor and having four men where we would have one in our American factories, the railway folks put up a factory, the construction of which is a real credit for this northern country and clime. We are sorry we could not get a photograph of it.

The question of raising beets occupied the agriculturists. They considered two plans—one of renting land and doing their own raising and the other of letting contracts to Chinese. The latter course was pursued, but we found the leaders in real distress and thinking of changing over this coming season to raising their own beets under direct scientific management. The profit motive looms big with the Chinese and they can subsist on little, outstarving the Japanese in the way they live. A high tonnage, however, with good sugar content is only the prize of those who have more than mere mule or muscle power; it takes knowledge and sympathetic understanding of the art of beet raising.

The company was organized as a beet sugar factory and refinery with a capital of Y.10,000,000 about $5,000,000. The factory was to be built large enough to meet increasing demands because at this time sugar was being imported annually, valued at $3,600,000, for a population of 20,000,000. Mukden was selected because it was a commercial center, it had outlying districts that had soil favorable to the beet and it was possible to get land reasonable on the outskirts of the city where railroad facilities were good. The refinery part of the factory was not built until 1919-1921 though the builders had that in mind and had room for it. The present consumption is 500,000 piculs or 66,667,000 pounds. The plant now has a capacity of 300,000 piculs, or 40,000,000 pounds.

The Mukden concern is known as the South Manchurian Sugar Manufacturing Company, Ltd. It covers a large area outside of the city limits. Mr. H. Satoh, an engineer, was in charge of the plant at the end of the year. His chiefs are practically all Japanese. There are about 3,000 farmers who are engaged in beet culture who send beets about fifty miles away from the factory, the farthest distance. Chinese raise the beets as the Japanese cannot own land in Manchuria. The average farm seems large in this region, but the beet people say that the largest are not more than 25 acres and that the average beet patch is 3 acres.

The acreage raised in 1917 was 40,000 mow; in 1918, 42,000 mow, in 1919, 20,000 mow, reduced on account of the World War; in 1920 it was 45,000 mow; in 1922 it was 60,000 mow, the banner year; in 1923 it was 30,000 mow. The sugar production was 100,000 piculs in 1917; it was 170,000 in 1918, ran to 300,000 piculs in 1919 and dropped to 45,000 piculs in 1920. The years 1922 to 1925 are not recorded, the results apparently being indefinite'

The farmers begin to plant in April though planting often runs into May. The harvest is in October. Kleinwanzleben seed was used this year but the crop was not very good and the season was wet and the beets were heavily laden with dirt. July and August were unusually wet and the spring was very dry. As regards prices, they were paying 19.70 yen per kin, which is 1,000 pounds. That would be about $9.50 which apparently is a mistake. The method of figuring foreign weights and measurements is always a task and some of the consuls here spend hours with their employes doing just that very thing, trying to give values in terms that Americans can understand.

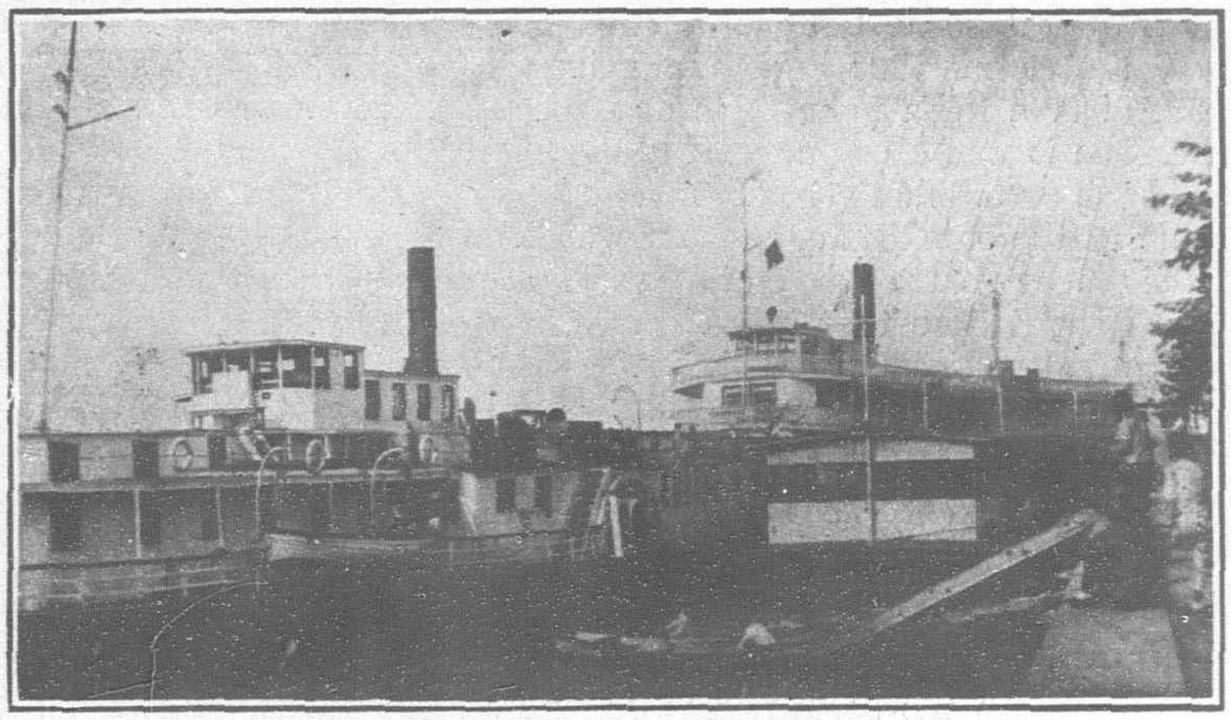
Much of the planting and cultivating, in fact the largest proportion, is all done by hand. Labor is so reasonable that it is possible to get all sorts of labor. The prices paid here are soy bean prices. This is a little difficult to decipher until one gets behind the scenes and discovers that as this is the staple crop in these parts, the whole prosperity of the land is governed by the price of the beans. Thus while soy beans were selling at $2.08 for 100 pounds in April granulated sugar was selling wholesale at $4.75. While soy beans were selling at $2.17 in May, sugar was selling at $4.50.

Though the Mukden factory is well built, the interior was not at all presentable. There is an inherent shiftlessness in some of the oriental ways that seems to permit debris and filth to accumulate. The means of sanitation have not been installed because the standard of living is lower than the average occidental. Floors are sticky and dirty, idle machinery is rusty with accumulated material. We were told that the whole concern was passing through a trying period which probably accounted for some of these conditions. There had been some mismanagement and the directors were planning an entire change of leadership as there was no director or manager present at the time of our visit. The company has had to contend with low sugar prices, beets had not turned out well, the refined market was low and altogether the institution had a gloomy and icy outlook.

The beet crop was still in the bins and 1926 was just drawing to a close. No beet sugar man would tolerate beets being exposed to frost and rain for three months, but that is what was the case here. The beets were of small build, scrubby and not topped enough in many instances. The Chinese ethical standard is below that of the average westerner and he does much that we would consider beneath us simply because grim necessity, goaded on by the profit motive, makes him resort to various methods to win in the fight.

The factory had the old-time diffusion battery elongated with two rows of cells, 14 in all. There were 10 mammoth filter presses, 4 evaporators and 12 centrifugals. Water comes from wells. All the machinery was substantial, rather voluminous, not placed conveniently and not even polished up for the annual run. The walls were all of brick with many warehouses with heavy tile roofs. Beet pulp was fed to cattle; there was no drying apparatus. The Japanese were not willing to give out much information as to the

(*Continued on Page 217.*)



River Steamboats in the Sungari, Harbin

A Typical Goods Cart in North Manchuria

# Transportation Facilities in North Manchuria

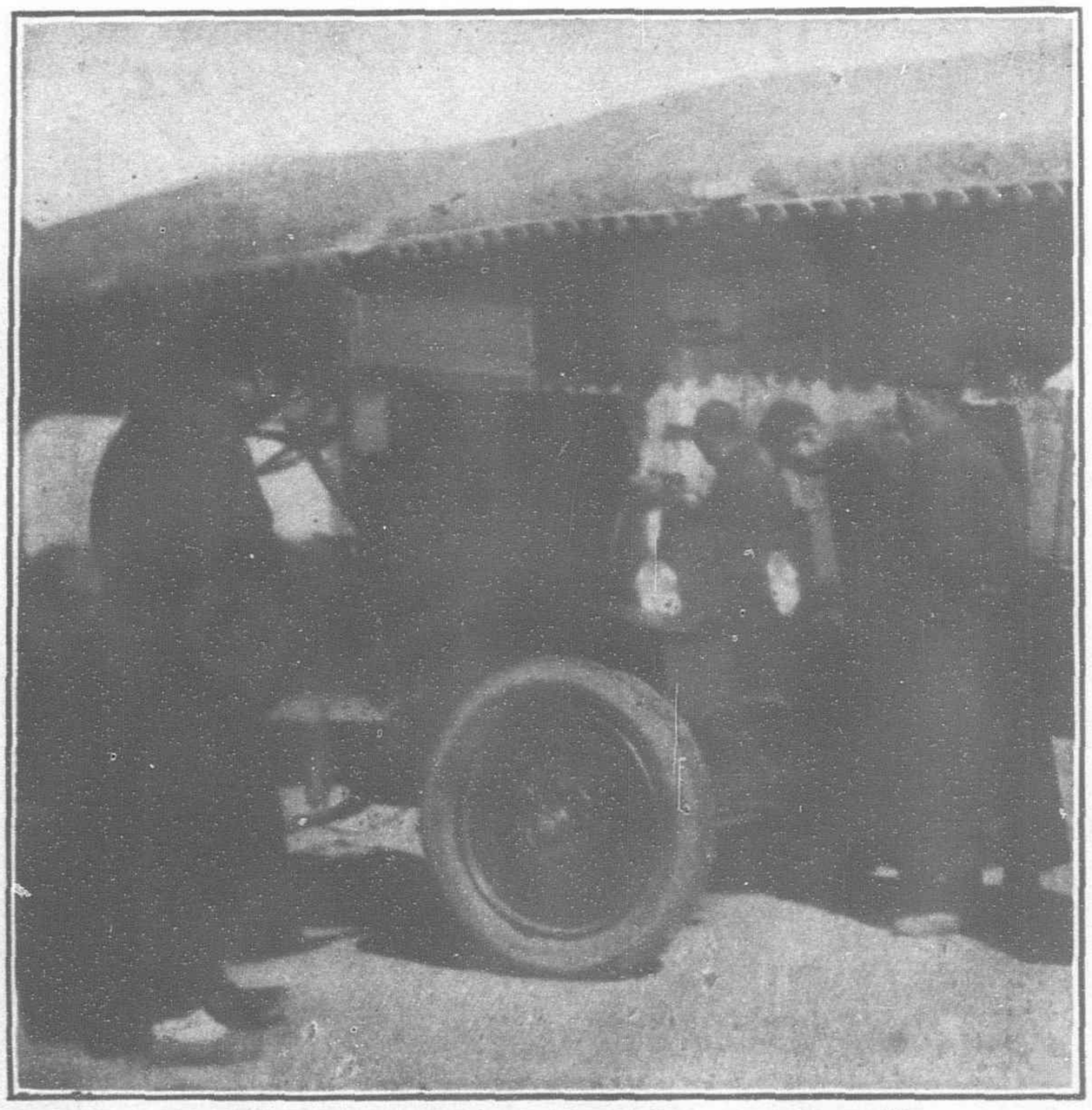
MOST of the roads in North Manchuria are merely dirt roads, little labor being expended on their improvement. Such roads, however, are in excellent condition during the winter season; when frostbound they are as hard and smooth as any well-metalled modern highway. The winter of North Manchuria covers about five months, from November to the end of March. As soon as thaw sets in, the roads become quagmires. The conditions become worse during the following four months, from May to August, when abundant rainfall renders communication by overland routes well-nigh impossible. So transportation facilities in North Manchuria depend much upon the seasons of the year.

The roads in North Manchuria may be grouped under four categories: (1) Those radiating from the Chinese Eastern Railway, serving as feeders to the railway, (2) those running in parallel lines with the railway, (3) those lying in the valleys of the Sungari River and those constituting the arteries of inter-district commerce. Those under the first category are by far the most important. They serve a rich agricultural hinterland. From Tsitsihar, for instance, radiate half a dozen roads to such districts as Nunkiang, 146 miles distant, Chingsing, 53 miles, Paichuan, 120 miles, Taonan, 188 miles, etc. The Antachan station is connected with Paichuan, 100 miles, Tsingkang, 46 miles, Santaokou, 40 miles, Wangkwei, 80 miles, and Hailun, 130 miles, by a system of roads covering a total length of about 450 miles. Thus the Tientsaokang and Tuitsingshan stations are connected with the neighboring districts. Harbin is the most important junction of such cart routes. Shipments of soybeans produced in this neighborhood reach the Harbin market by these cart routes, whose importance as feeders to the Chinese Eastern Railway can hardly be over-estimated.

Those running parallel with the railway rival the railway for the carrying of foods. Whenever the railway raises its freight rates, merchants and traders switch over to the cart routes, which are cheaper for conveyance, though of course much slower. Of these routes, the two principal ones both run from Changchun to Harbin but in different directions. The Nanlu or southern route runs to the left of the railway through such districts as Shihtouchengtze, Laoshoukou, Changchiawan, Shwangshantze and Taipingshan, while the Peilu or northern route runs to the right of the railway through Siaozehao, Sanchiatze, Kaoshantun, Wanchingta, Nunganhsien and Siaoholung.

These two routes are alike cut by the Sungari River in the neighborhood of Lalinho, this rendering through-traffic inconvenient. But in spite of this drawback, they are much used by farmers and traders in moving farm produce to market. Traffic is busy through all the seasons of the year. They compete strongly with the railway, from which a considerable portion of traffic is drawn by them, particularly when the railway raises its freight rates. The railway authorities are fully aware of this, and have recently reduced freight rates and provided other inducements for rail conveyance. As a result these cart routes have lately lost much of their importance. Merchants now generally prefer to move their goods by railway. Roads belonging to the other two categories, though their number is numerous, are of less importance. As to the waterways, with the exception of the Sungari River, all the small ones are navigable only in the flood season. For the greater part of the year, these rivers are either ice-bound or dry beds.

Since overland routes constitute the only artery of communication in the interior of North Manchuria, carts play a very important part in carrying both goods and passengers. The "*ping* cart", drawn by a team of from three to 12 or 13 horses or mules is used for goods traffic, and the "small cart", drawn by one to three or four animals, is for passenger traffic. Both types are two-wheeled carts, the body being usually built of elm wood and



A Motor Car Starting from Hailar for Mongolia

the wheels and the axle, of some strong, hard wood. The body of the "small cart" is usually covered with an awning. The carrying capacity of a "big cart" depends upon the condition of the road and the number of draft animals employed. In the winter season, one horse can carry about 22-23 poods and if a cart is drawn by seven horses, it is capable of carrying 150 poods or two tons and a half at a time. In the summer season, when the roads are muddy, it can carry only half the quantity. In the winter season, a heavy-laden cart can cover from 25 to 35 miles a day and, if unloaded, it may cover 40 miles. The "small cart" carries three passengers and covers 40 miles a day in the winter season, and, if employed in carrying goods, is capable of carrying one ton.

Farmers who keep carts and horses engage in transportation business during the winter. Their object is to earn enough to maintain their farm teams in the slack season. They limit themselves to the carriage of small consignments for short distances. For large consignments, the consigner must turn to a class of common carriers known as *che tou*. The latter obtains carts and animals for the consigner and holds himself responsible for the safe delivery of the goods. A contract is usually signed between the consigner and the common carrier. In case of loss of goods through brigandage, which is of frequent occurrence in north Manchuria, the common carrier, according to custom, must make good half of the goods lost. Sometimes he may be responsible for the full amount and sometimes he may be exempt from any liability, according to the terms of the contract. The payment of likin duty is sometimes also contracted by the common carrier. In that case he can make a little more by some ingenious way of evading duty, which is only known to him.

In addition to the *che tou*, there are the *che tien*, or livery stables, which keep carts and draft animals for hire but sometimes also do business as common carriers in exactly the same manner as the *che tou*. There are two classes of *che tien*: one engaged in goods traffic and the other, in passenger traffic. The cost of transportation by cart is not fixed, the rate varying with locality and goods. In the case of cereals the charge is assessed by quantity with the picul as unit, which is again converted into other weights. In the absence of a standard system of weights and measures, it is rather difficult to make an accurate estimate. Payment is usually made in currency notes, which have a fluctuating value on the market.

Motor transportation is gaining in popularity in North Manchuria. But up to the present motor traffic is confined to only a limited area in the neighborhood of the railway and to the carrying of passengers. It is estimated that about 200 motor cars of different types are engaged in passenger traffic between certain railway stations, including Harbin, Antachan, Tientsaokang, Tsitsihar and neighboring districts. About 100 cars are on regular runs in the winter season between Harbin and neighboring districts, about 40 at Antachan and 25 at Tsitsihar. The passenger fare for a trip, say, from Harbin to Hulan, about 13 miles apart, is $2 and from Harbin to Tsingkang, 78 miles apart, $8.

There are no well paved roads in North Manchuria with the exception of that between Antachan and Paichuan, about 80 miles long. On this road certain improvements have been made and the road more or less resembles a modern highway. For the rest of the countryside, there is an entire absence of roads. Even the beaten tracks for carts and caravans disappear in the winter season when the ground is frost-bound or covered with a few inches of snow. In such circumstances the cars take the shortest cut between two points. But after thawing a good portion of wheeled traffic is compelled to suspend because of the bad conditions of the roads.

Besides carts and motor cars, sleighs are often employed in carrying both goods and passengers over ice and snow covered ground. The winter of North Manchuria is dry, there being usually only a few inches of snow on the ground, not sufficient to interfere with wheeled traffic. In the summer months, when the whole countryside is reduced to a quagmire by abundant rainfall, pack horses are always resorted to for the movement of goods. On the Mongolian border ox carts and camel caravans are employed to travel over the steppes and deserts. The presence of *hunghutze* bands constitute a serious menace to travellers. The greater part of North Manchuria is still thinly populated, and outlaws have much freedom of movement. Whenever a caravan is waylaid, the bandits always take away everything, both goods and carts and draft animals. The merchants sometimes secure an escort of soldiers and police for their caravans. Even then it is sometimes necessary to make a long detour to avoid infested districts.

## Beet Sugar Development in Manchuria

*(Continued from page 215).*

working of their plant. The whole ground is surrounded with Chinese walls and a number of keepers are in charge. The office is an elongated building and they have a special reception room, where visitors are entertained often with no fire when the thermometer is 28° above zero.

The refinery was running at full blast working up Java sugar. They were employing 50 Japanese and 100 Chinese. The Japanese get much more pay than the Chinese. Some of the men were not getting beyond 20 cents a day. They were bagging the soft sugars and all the stacking was done by manual labor, four men helping to load a bag on another's shoulder and singing while doing this, as Chinese are unable to do hard work unless they sing with a rhythm to work in unison and take the sting of drudgery out of their task. The plan is not a bad one to follow as most workmen have not learned the elixir of life which is joy even in the ordinary tasks. This is one of the outstanding things, all through China, the sing-a-song attitude in work and it certainly relieves their monotony and adds zest to the work in hand.

About the time the Mukden factory was started the Manchurian railway erected another factory at Tiehling, about two hours north of Mukden. For the first three years the factory was unable to pay its way. High prices were paid to the farmers. In 1919 the factory paid 10 per cent. dividend; in 1920, it was 15 per cent. because in those years sugar prices were on the upward trend. That year 4,650 tons of sugar were produced. Since then there has been a gradual decline. The Tiehling factory has capitalized at Y.1,250,-000.

The difficulties that they have encountered can be placed in three groups:

First—Reduction in acreage devoted to beets.

Second—The constant decline in refined sugar prices in local markets till they are down to 4.50 cents.

Third—Increased imports from Formosa at prices below those that are necessary to produce sugar in Manchuria.

For this reason the Manchurian Sugar Company decided to suspend the operations of the factory at Tiehling in 1925. Probably the internal disturbances have had some bearing on this situation. The beet people are facing a keen competition with cane. It is absolutely impossible for any of the beet factories to cope with the cane factories unless there is the same scientific supervision and leadership. The whole program of sugar manufacture is reduced to simply this—only scientific methods to reduce losses will win in the race when the margins are so close on the final results in the counting house.

MUKDEN, Manchuria.

---

**Petroleum Industry in Japan.**—The demand for petroleum has greatly increased in Japan during the past few years, and at the same time domestic production has decreased somewhat. In 1925 the output increased slightly, but advance figures for 1926 indicate a further decline, says the U.S. Trade Commissioner at Tokio. The 1925 production of 1,628,000 koku represented an increase of 49,000 koku, or 3 per cent. over the previous year. (One koku of petroleum — 47.65309 American gallons). Most of this increase resulted from new wells bored by the Nippon Sekiyu Kabushiki Kaisha (Japan Oil Co.), while the cost of sinking and putting the wells into production was greater than the output warranted. Production of domestic petroleum during the first half of 1926 amounted to about 752,000 koku, or 40,000 less than during the corresponding period of 1925. Although production during the second half of 1925 showed a considerable increase over that for the first half, the output during the second half of 1926 is expected to be 10,000 koku less than that for the first half of the year, making a total estimated production of about 1,500,000 koku for the whole of 1926—120,000 to 130,000 koku, or 8 to 9 per cent. less than in 1925.

# Japanese Power Project Opposed

ACCORDING to the Wall Street Journal Japanese electric power companies are mustering their forces to an intensive drive in the present session of the Imperial Diet to prevent the government from playing in their back yards. The point of contention is the government project to build a giant power plant on the Shinano River, developing 154,000 kilowatts.

Private power interests condemn the project from two aspects: first, it is decidedly wasteful; second, it will place an unfair burden upon private enterprise, According to government estimates, the cost of each kilowatt unit in the Shinano plant will be 649 yen. The Sakuma River plant of the Toho Electric Power Co., which has a capacity of 100,000 k.w., cost but 450 yen per kilowatt. The two Oi River plants of the Tokyo Electric Power Co., with a combined capacity of 187,300 k.w., cost but 400 yen per kilowatt. Moreover, the government already has spent 5,000,000 yen in investigations which have covered six years, and, if the cost of the necessary reserve plant and the high tension towers connecting the stations with the central railway lines is added, the cost per kilo may very easily touch 1,000 yen, an unprecedented figure. As there would be a surplus of about 100,000 k. w., the government would be forced to sell it to the general public. To make a profit, it would have to charge at least 230 yen per kilo per year, about double the rate of private firms.

## Companies Fear Losses to Themselves

Having proved to their own satisfaction that the Shinano River enterprise is a thoroughly unbusinesslike proposition, the power companies next turn to its possible effect upon themselves. The Electric Power Development Commission of the Japan Electric Society has prepared the following figures on the supply and demand for electric power in the district which would be affected immediately by the sale of the Shinano River surplus. The cities and environs which are included are Tokyo, Yokohama, Nagoya, Kyoto, Osaka and Kobe. According to the commission, the demand for power at these leading consuming centers at the end of 1926 was 975,000 k. w. Waters in the rivers were low at the end of December (they reach their lowest point in January) and only 838,700 k.w. of hydro-electric power was available to meet this demand, supplemented by 487,200 k. w. of power from steam plants. This makes a total of 1,325,900 k. w. and a surplus of 350,900 k. w., or about 36 per cent.

The commission also compiled figures for expected increases in supply and demand. They follow (in 1,000 kilo):

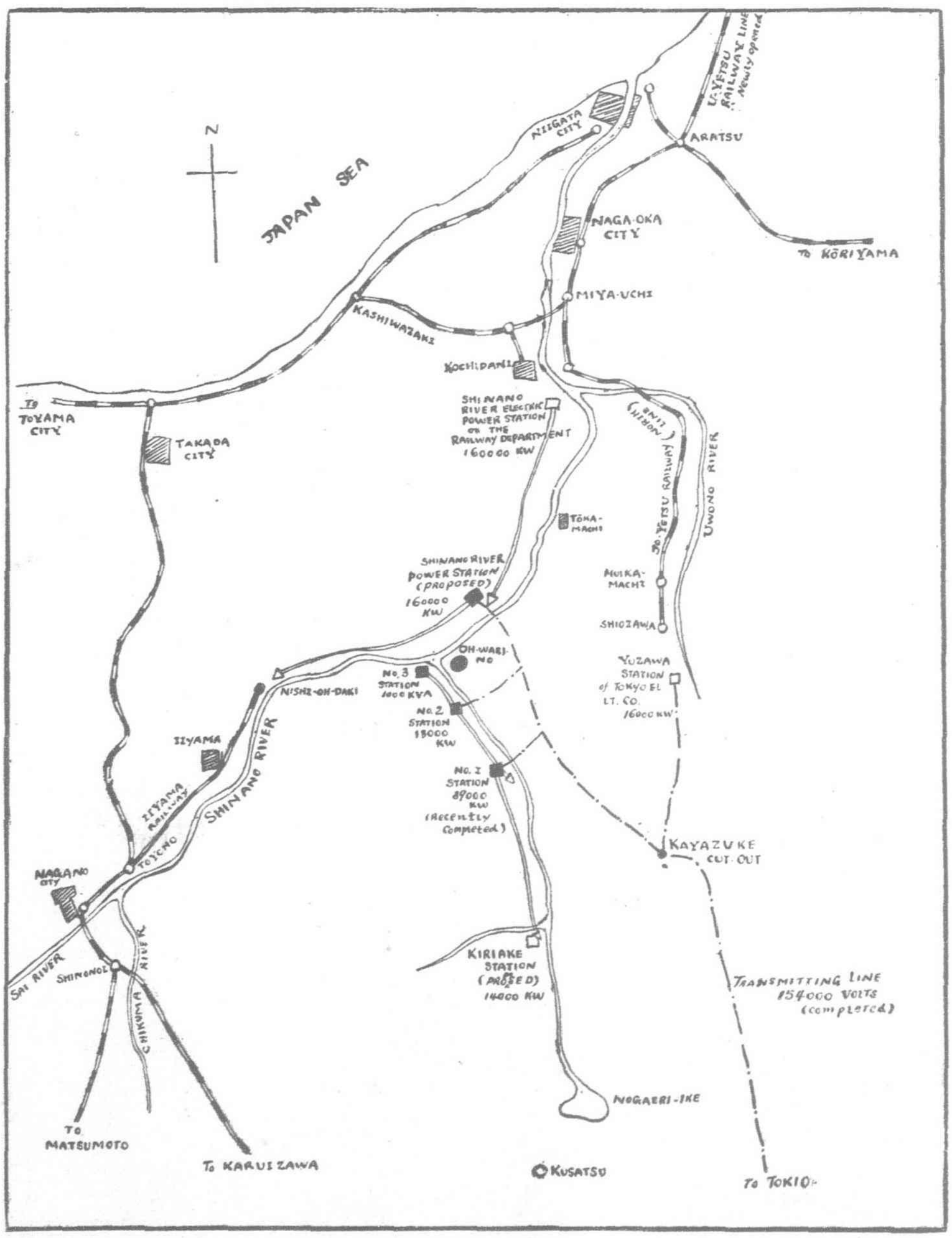
| Date : | Demand | Supply Hydro | Steam | Total |
|---|---|---|---|---|
| March, 1927 ... ... ... | 806 | 985 | 512 | 1,497 |
| December, 1927 ... ... ... | 1,102 | 948 | 649 | 1,597 |
| June, 1928 ... ... ... | 905 | 1,099 | 649 | 1,748 |
| December, 1928 ... ... ... | 1,235 | 1,025 | 649 | 1,674 |
| June, 1929 ... ... ... | 1,009 | 1,180 | 649 | 1,829 |
| December, 1929 ... ... ... | 1,380 | 1,107 | 659 | 1,766 |

## Government Blamed for Power Surplus

The government was blamed by the commission for a large part of the surplus now evident. When a power company in Japan buys or otherwise acquires a water power concession, it must apply to the government for permission to start work. To this permission is attached the stipulation that work must be started and completed on such-and-such dates. As a result many concessions have been made productive long before required. The commission suggested that the government might be persuaded to preclude further exploitation of water power rights by executive order in order to give demand a chance to reach its proper ratio.

The foes of the Shinano River project, who are headed by Yasuzaemon Matsunaga, vice-president and managing-director of the Toho Electric Power Co. and vice-president of the Tokyo Electric Power Co., point out that the electrification of the Tokaido Line of the Imperial Government Railways, which connects the chief commercial and industrial centers of the nation, Tokyo, Yokohama, Nagoya, Osaka and Kobe, would cost, at the outside, but 50,000,000 yen and would require but 50,000 k. w. If the government would turn at once to this project, abandoning the useless and expensive Shinano River scheme and buying power from private

*(Continued on page 220.)*




Map of the Shinano and Nakatsu River District, showing the Power-House Sites of the Shinyetsu Electric Power Company feeling into the Joetsu Transmission Line of the Tokyo Electric Light Company, and the Site for the projected 160,000 k.w. Power Plant for the Imperial Japanese Railways

# A Theoretical Research to the Stability of Quay Walls in the Port of Shanghai

*By Dr. Alfred Berrer, Professor of the Tungchi University, Woosung*

THE Export and Import of Shanghai at present amount to some ten million tons per annum. The quantity of cargo handled per running meter of wharf front is higher than would be considered normal in western harbors. The situation is still more aggravated by the lack of adequate facilities for cargo handling. The extension of the loading and discharging wharf frontage is consequently for Shanghai a pressing question, which for years past has been discussed in Shipping circles as well as by the engineers concerned.

This periodical has devoted various contributions to this subject, some of which deal with the matter from a technical point of view. The principal difficulty to be overcome is caused by the poor properties of the soil which make necessary a particular safe foundation for constructions near the shore line. In one of these articles* reference is made to one of my own publications,† dealing with a theoretical examination of the stability of Quay-walls on soft clay soil. My researches were used therein as a foundation for a reply to an essay on this subject which appeared in the July issue of this same periodical, written by the Engineer of the Whangpoo Conservancy Board, the late Mr. Karl Bryhn. To begin with I wish to state that my article in the " Bautechnik " was based on the same calculations as those brought out by the said Mr. Bryhn in a lecture delivered before the Engineering Society of China on the 15th. April, 1926, and that in this respect I was working in accord with him. It is an unique coincidence that the aforesaid reply makes reference to data which really concurs with the calculations of the same author, and I think therefore that I shall be acting in the spirit of the deceased, if I use the result of his investigation as the foundation for a theoretical research, which is to help solve a problem so vitally important for Shanghai.

Ordinary calculations of the pressure of the soil on walls and supports are based on the assumption that in the event of their giving way, a sloping but even sliding surface is formed, along which the earth masses move down. As a result of experiments different investigators have however repeatedly established the fact that the sliding planes behind supporting walls are not straight but curved concavely in an upward direction. The curve of these planes was however always found to be rather inconsiderable so that in the composition of computations to determine the pressure of the soil it is as a rule sufficient to consider the sliding surface as an even plane.

But for soft, watery clay soil this general rule cannot be applied, and those supporting walls erected according to the customary calculations would in no way resist the pressure of the soil, and the collapse of many structures have proved that. This is again an instance where the observant engineer watching the collapse of a structure learns more than from the perusal of a great number of text books. As it has been possible to observe in Shanghai already in different instances, the collapses invariably all had a similar appearance of the glide. At quite a considerable distance away from the original waterfront, inland, a steep rupture is formed in the soil. Approximately under the original edge soundings show the deepest part of the newly formed bottom surface and under certain conditions several meters towards the river an earth bank whose vortex protrudes over the low water mark comes into existence. This can be explained in no other way than that the earth masses together with the quay walls glide along a very strongly curved plane.

Under such conditions there are two ways by which the stability can be determined, one of them is based on the assumption that the sliding line is circular similar to that drawn on the figure in thin lines. Such an assumption was made by Professor M. Moeller when working out a calculation for the construction of new wharves at Gothenburg (Sweden), where very similar soil conditions to those in Shanghai exist. This assumption is plausible, as only with a circular sliding surface it is possible to preserve the shape of the sliding earth masses in their original form and to keep them from splitting up into separate parts and as such a rupture or break could only result after overcoming other internal forces of friction which oppose the sliding.

In the alternative method of calculation there is, for the sake of safety, no consideration given to these forces of friction, whose effects are anyhow not known. In this method the gliding line along which the forces of friction offer the least resistance is taken. The internal forces which seek to preserve the form of the sliding-off earth masses and thereby add to the safety of the structure are therefore in this way of calculating neglected. This is, to my knowledge, the method preferred by the engineers of the Whangpoo Conservancy Board. As a matter of fact both methods lead to the same end, as in all statistical researches it is necessary to allow for a certain factor of safety, which really represents the relation of the bearing power to the highest load that actually ever appears in the constructions. For a circular gliding plane a safety factor of 1.5 is allowed, while in the calculation where the most favorable gliding line is used the assumption of a 1.2 factor of safety results in nearly equivalent measurements of the constructions.

The cross-section of a wharf which was planned in a report by the Committee of Consulting Engineers, Shanghai Harbor Investigation, 1921, has been chosen in order to explain the procedure of the examination. At this point the observations made known by Mr. Bryhn, namely that the internal angle of friction of the clay soil decreases with the depth, or to be more accurate with the increase of surface pressure must here be considered. One can count with an angle of some 30 deg. near the surface, while at a depth of 15 meters only with an angle of approximately 18 deg. From the curve of the angle of friction reproduced on Page 304 of the " Far Eastern Review " the following figures are obtained.

*Pressure of the Soil*

| | | |
|---|---|---|
| p | = | 0 t/m |
| | | 5 ,, |
| | | 10 ,, |
| | | 15 ,, |
| | | 20 ,, |

*Angle of Friction*

| | | |
|---|---|---|
| § | = | Approx. 30 deg. |
| | | ,, 26 ,, |
| | | ,, 22½ ,, |
| | | ,, 20½ ,, |
| | | ,, 19½ ,, |

The procedure in a research on the

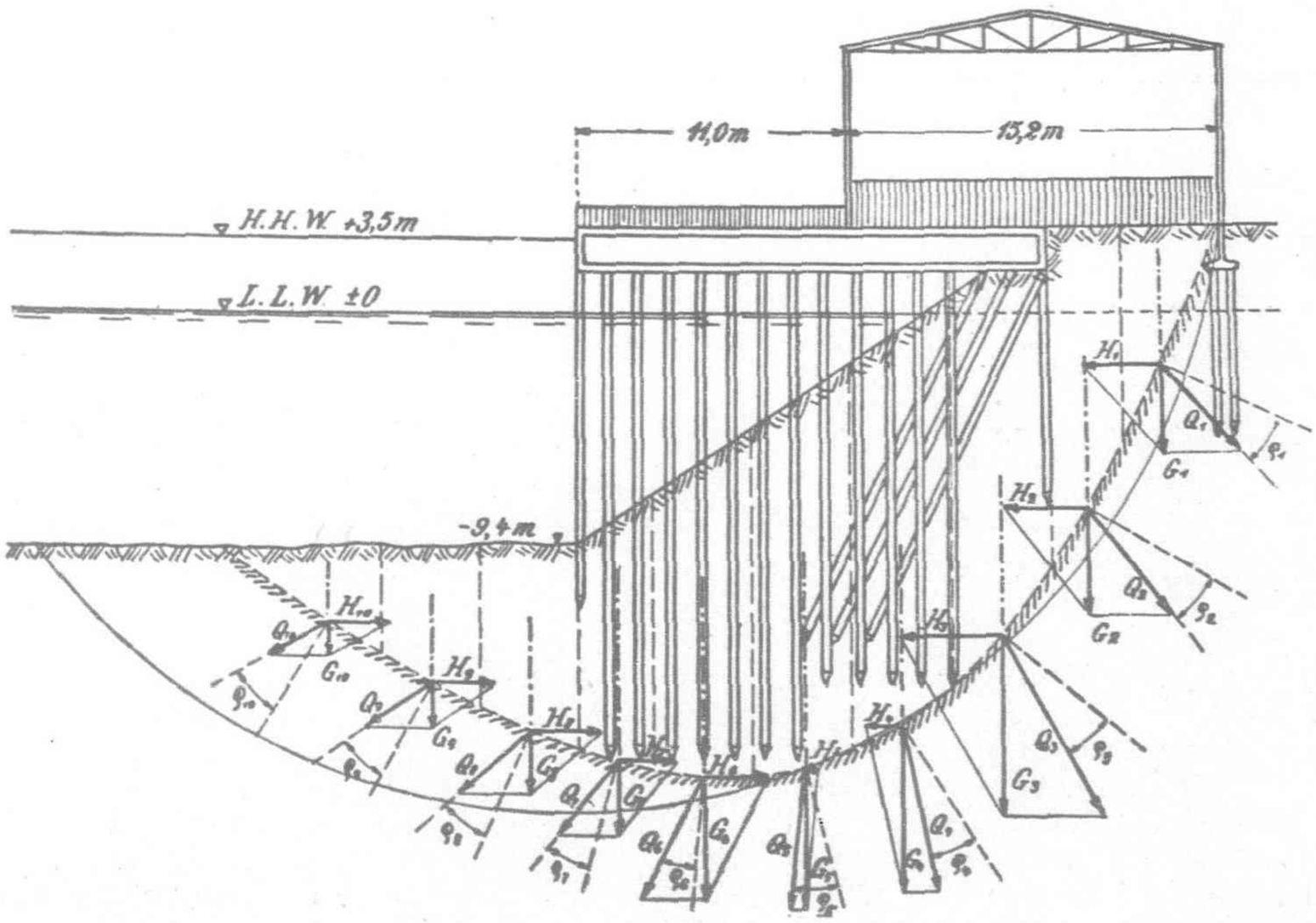



Fig. I.

*November issue, 1926, page 542.

†In the German periodical "Die Bautechnik" No. 52 of the 4th. December 1925.

stability of the soil with regard to quay walls is as follows. In the drawn cross-section a from experience likely gliding line is taken. As seen from the drawing, the overlying surface is then divided into perpendicular lamella and the weight of these plus that of the live load computed. The weights G1, G2, etc., are then resolved into two components. One component Q. which with the perpendicular line to the tangent of the sliding surface includes the angle of friction and one horizontal component H. For each separate lamella a similar resolution is undertaken, in the same way as Coulomb introduced for the entire earth mass, in the statement of his well-known earth pressure theory. It is evident that the angle of friction in each instance must be the one corresponding to the depth. As seen from fig. 1, a part of the horizontal components is at least equal to the sum of those turned towards the river. For the sake of safety in accordance with the required safety factor of 1, 2 a surplus of 20 per cent. is necessary. This process must be repeated for several gliding lines, whereby the most unfavorable line, which can rapidly be found with a little practice, is taken as the standard. In our example the following figures, which have been computed for a one meter quay length result :—

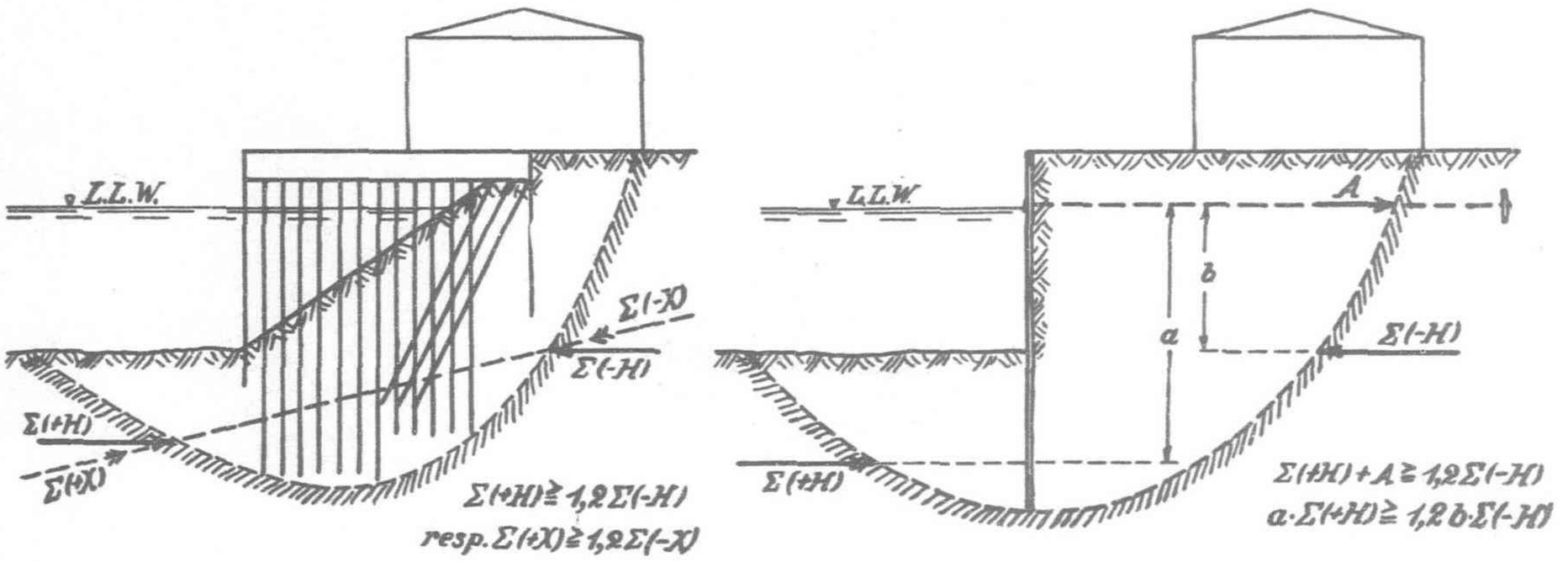



Fig. II.

A ONE METRE QUAY LENGTH RESULT :—

| Lamella | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Weight G. .. .. | 35.2 | 42.6 | 73.8 | 67.3 | 56.5 | 49.4 | 29.9 | 24.1 | 17.6 | 13.2 tons |
| Pressure P. .. .. | 9.8 | 14.2 | 18.5 | 16.8 | 14.2 | 12.4 | 7.5 | 6.0 | 4.4 | 3.3 t/m2 |
| Tangent of the friction angle .. .. | 0.41 | 0.38 | 0.35 | 0.36 | 0.38 | 0.39 | 0.44 | 0.46 | 0.50 | 0.55 |
| Component H. .. .. | —30.5 | —32.5 | —40.0 | —13.5 | +6.0 | +26.0 | +24.5 | +29.0 | +27.5 | +26.0 t/ |

$\Sigma(H) = 116.5$ t $\qquad \Sigma(+H) = 139.0$ t

$$\frac{\Sigma(+H)}{\Sigma(-H)} = \frac{139.0}{116.5} = 1.20 ; \quad \text{Allowance} = 0.20 \text{ or } 1\ 20\%$$

This calculation is in accordance with the experience for deep foundations and light superstructures as well as for the minimun permissible live load in the proximity of the quay edge, which stipulations were also made by Mr. Bryhn in his aforementioned article. The proposal by Mr. Timme (F.R.E. 1926, page 542) to use steel sheet piling stands of course in contradition to this as here the earth masses are filled right up to the wharf edge, thus exactly there where great additional loads occur and where they, according to preceding evidence, are least desired. But it must however, be noted that steel sheet piling holds back the earth masses because it is anchored and the anchor force forms together with the other forces, a great inland directed horizontal force. The anchorage though must naturally lie so far back from the quay edge that it cannot be torn together with quay-wall into the river. A rough estimate of the forces involved has made it evident that such pier walls would also be built in Shanghai solidly, even under the discussed conditions (cfr. fig. 2).

As to the economical side of the matter is of course possible to ascertain only by experience which method would prove most profitable.

## Japanese Power Project Opposed

*(Continued from page 218).*

interests, they argue, it would save money and greatly assist an industry which has over-expanded.

### Power Interests Uniting More Closely

Meanwhile, the interests concerned appear to be setting the stage for a business drama which might be called " Love Among the Kilowatts." The first move toward an entente of the real interests behind the power industry (Yasudia, Mitsui and Mitsubishi) was taken with the formation here late last year of the Japan Electric Bond & Share Co., engineered by Burnett Walker, vice-president of the Guaranty Co. On the heels of this, Dow, Jones & Co. has learned, the principal companies affected by the present competition (incidentally, all those which have obtained loans in the United States) have reached the basis of an agreement to stop the rate warfare. If Tokyo Electric Power has not promised its consumers greatly reduced rates, effective the first of this year, and did not feel obliged to keep its word by maintaining them for at least some months, this agreement would become effective almost immediately.

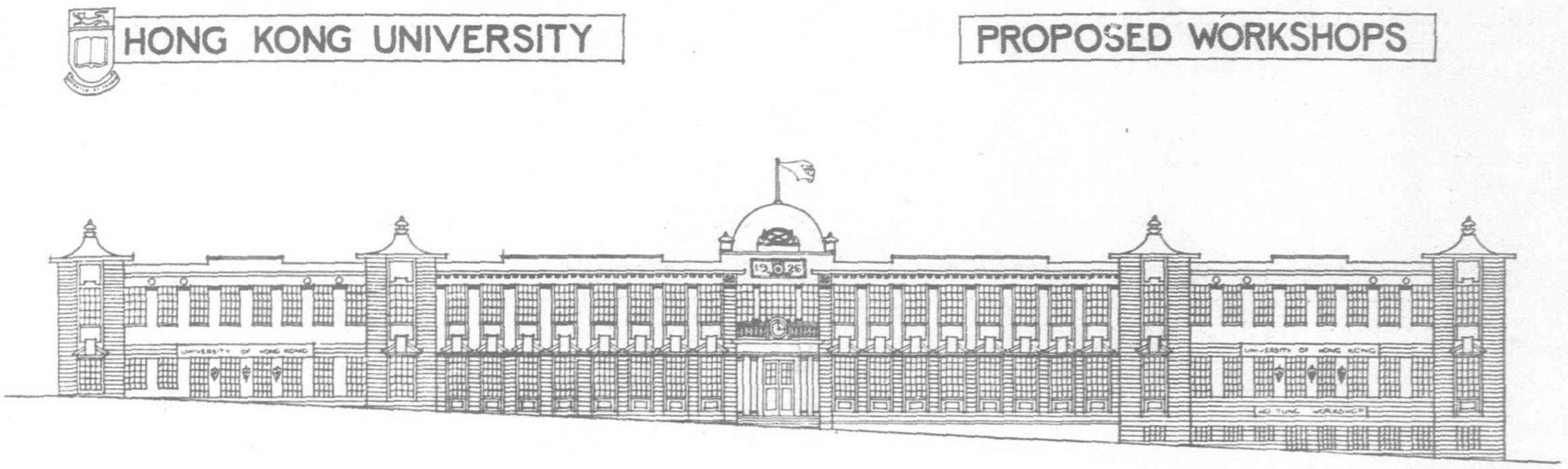
Work was started in January on the government's 60,000 k.w. steam power plant at Tsurumi, just south of Tokyo. It is to be completed in the fiscal year of 1930 and is expected to serve as an auxiliary for the Shinano River project.

### American Accountants Secured

Acting upon recommendation of Dillon, Read & Co., the Daido (Great Consolidated) Electric Power Co. has appointed the firm of Haskins & Sells, certified public accountants of New York, as auditors. The work will be under charge of the accounting company's Shanghai office and will be from June 1 of last year.

According to an announcement by the Communications Ministry, 56 electric power firms were absorbed by 50 others during 1926.

Shohachi Wakao, new president of the Tokyo Electric Light Co., has announced that his concern, which reduced its dividend from 11 per cent. to 9 per cent. for the term which ended last December, has decided on a program of rigid retrenchment by which it hopes to save 10,000,000 yen a year or more. It is disposing of two small suburban trolley lines and a great deal of urban real estate no longer required.—(*Wall Street Journal*)



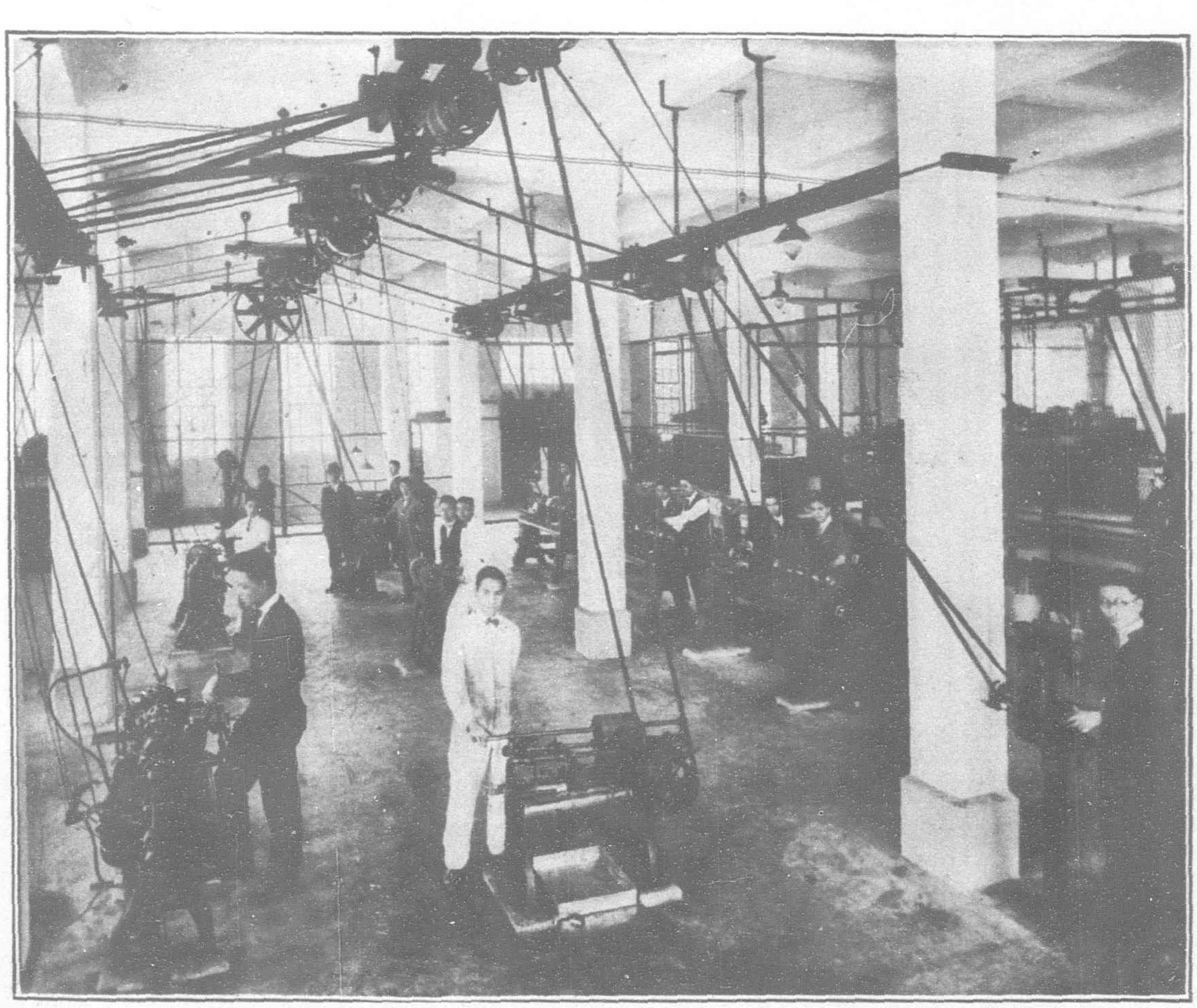

# The New Ho-Tung Engineering Workshop

(CONTRIBUTED)

ABOUT fifteen years ago (1912), the University of Hongkong was opened. Three buildings were then available; they consisted of what is now called the Main Building and also two other blocks, one being the Vice-Chancellor's residence and the other consisting of two semi-detached houses designed for Professors' residences. There were also two Hostels erected by friends of the University. These were "recognised" as students' residences but were not the property of the University Authorities.

Since 1912, nearly $1,000,000 has been spent upon new buildings for the University; the value of the scientific and other equipment collected may be estimated at about $750,000,00 Hongkong currency.

In 1912-13 the total annual revenue of the University, including that from endowments was about $90,000. For 1927 the annual revenue has been estimated at about $550,000. This includes the revenue from a capital sum of $750,000 (Hongkong currency) contributed by the Rockefeller Foundation for the chairs of Medicine, Surgery and Obstetrics. The remainder of the revenue is obtained from the invested endowment fund, contributed by Chinese, British and Indian supporters of the institution and there is also included the fees of the students. In general terms the students pays in fees for less than one third the cost of his University education. The balance is made up from the endowments supplied by generous supporters of the University.



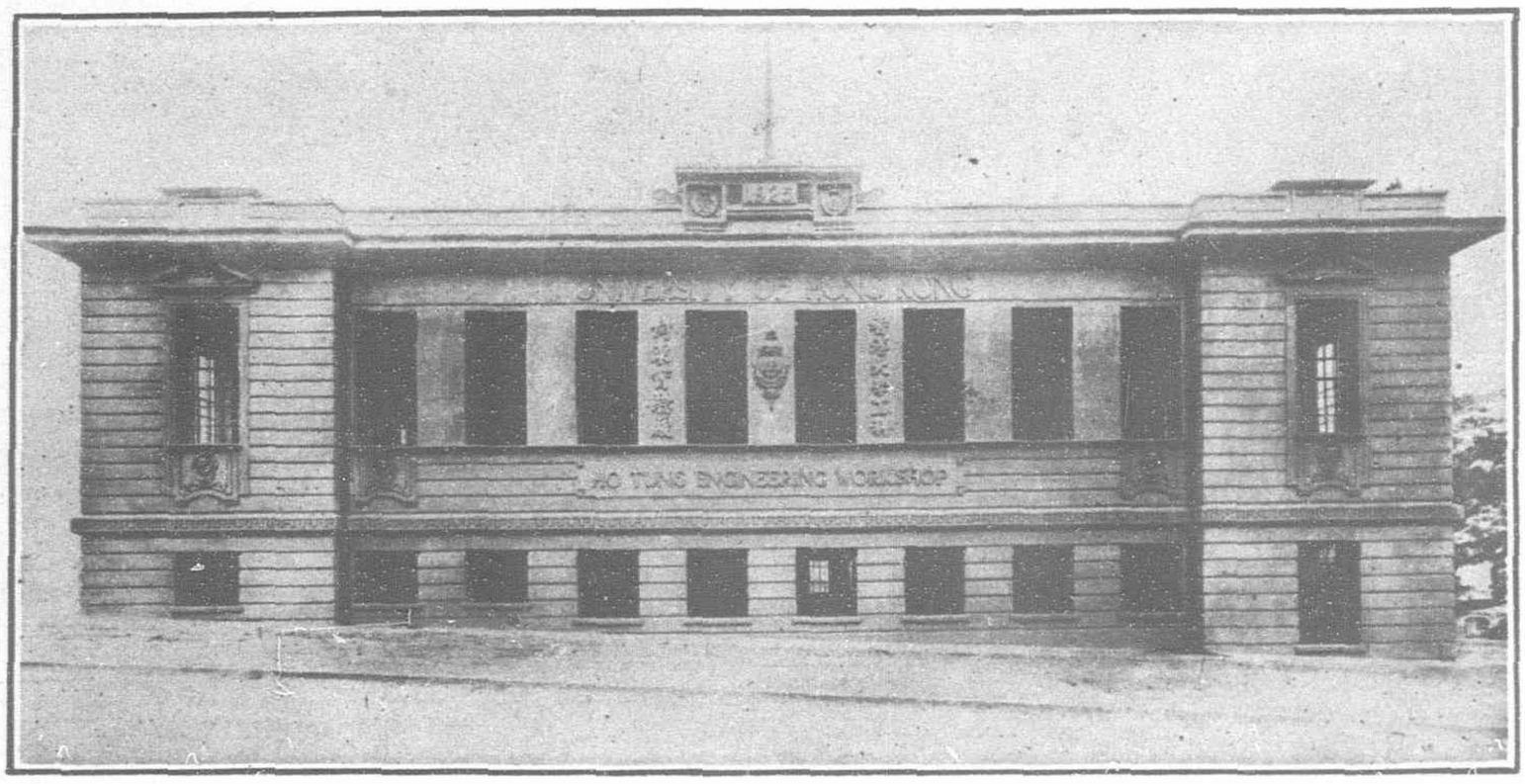
**Ho Tung Engineering Workshops, Engineering Under-Graduates at Work with Machines**

The premises erected or acquired since 1912 consist of (*a*) three hostels (each capable of accommodating about 55 students, a Warden and servants) (*b*) eight blocks of detached or semi-detached residences for the staff (*c*) a students' union building (*d*) two medical buildings for tropical medicine physiology and anatomy (*e*) a a Commerce building.

Hongkong University Medical students have practical instruction in the local Government Civil Hospital; although the Hongkong Government is responsible for the finances of

that hospital it may be regarded as housing laboratories in which the Professors of Medicine, Surgery and Obstetrics give practical instruction to students of the University.

The most recently completed University building is that known as the Ho-tung Engineering workshop. It is named after the donor, Sir Robert Ho-tung, who presented a sum of $100,000,00, Hongkong currency, to the University for the purpose of providing a workshop wherein the Engineering students might obtain practical instruction and experience with machine tools, etc.




South View of Ho-Tung Engineering Workshop

## A Difficult Problem

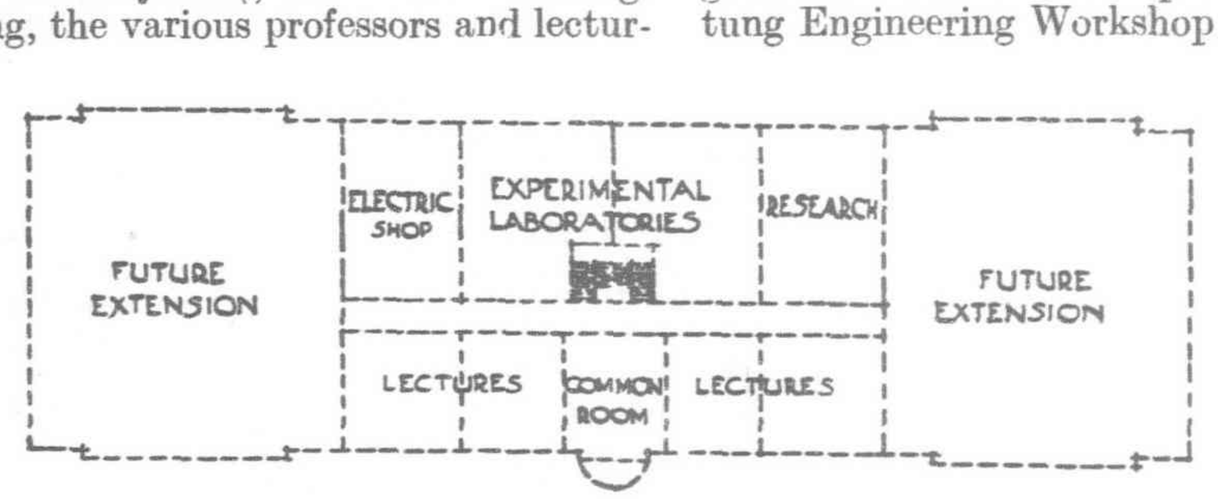
When Sir Robert Ho-tung made his donation, it was believed that a new workshop could be suitably built within the grounds of the University. Various sites were suggested, but when the whole matter was thoroughly investigated, it became evident that the objections raised to the use of any of these sites for a workshop were by no means unworthy of serious consideration.

In the first place, any site adjoining the existing lecture rooms had a disadvantage that a workshop produces noise. Indeed, past experience had proved that to be a fact. In 1914, a small workshop providing an area of 3,600 sq. ft. was opened for the use of engineering students on a site adjoining the main building. Whenever, there was hammering, the various professors and lecturers effected, as well as the University administration officials, begged for a cessation of the noise. It soon became obvious that the small workshop provided insufficient accommodation for the engineering students. It was clear that any new workshop must be removed to some site more distant.

The grounds of the University at that time covered an area of about one million square feet. Scattered over the grounds are the hostels, or student residences, the staff residences, various Medical buildings, a students' Union building, playing fields, etc. Any site within the grounds proved to be too close to some other building or too expensive for site preparation necessary for a building of the size contemplated, viz, 100-ft. by 100-ft. or 10,000 sq. ft. in area.

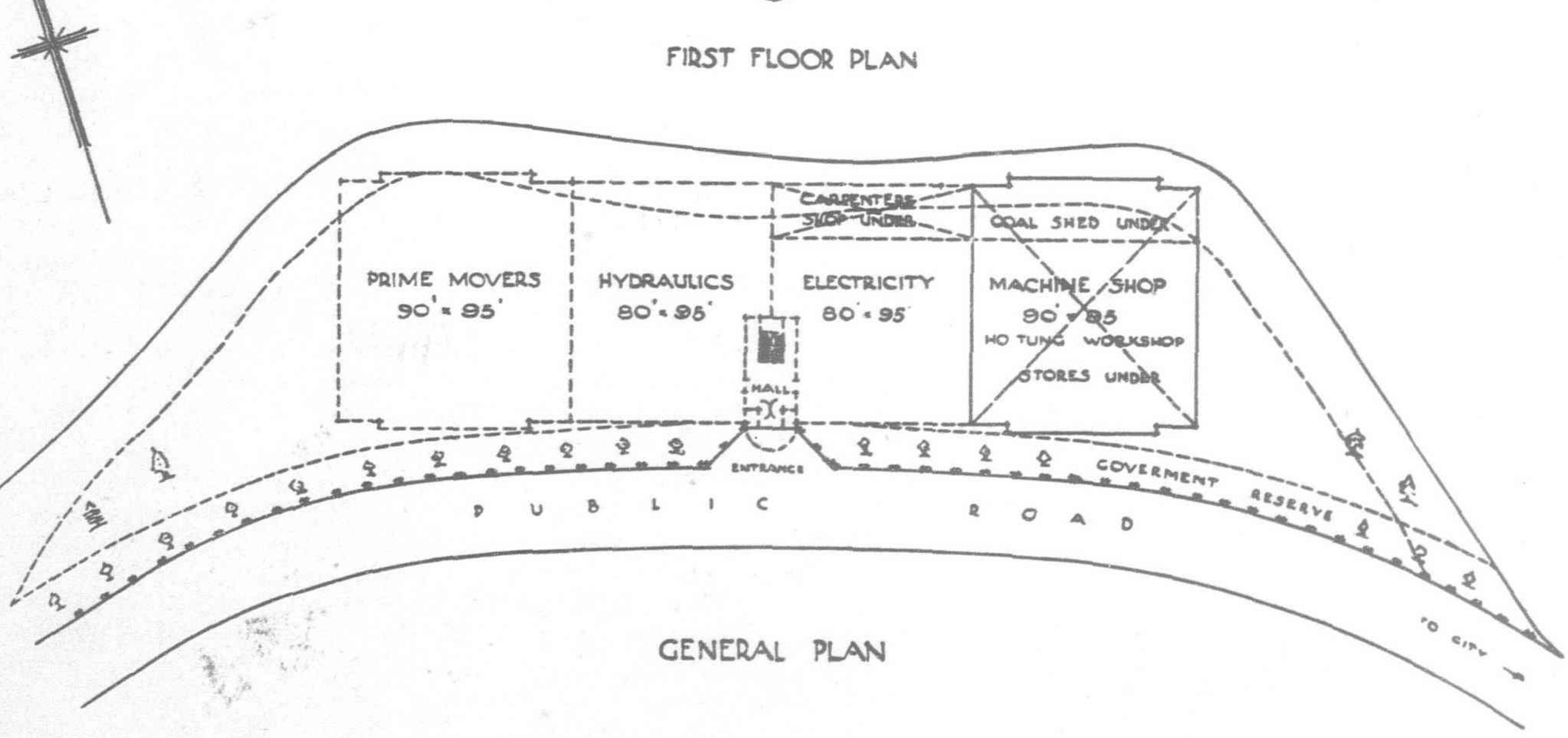
It was also desirable to draw up a plan for future extensions so that if money should become available for engineering buildings which could be placed alongside the workshops there would be some definite scheme to work upon. At present the Engineering laboratories are scattered in various parts of the University main building and adjoining premises.

Finally, after considerable discussion and negotiation, an excellent site was discovered not very far away from the University grounds. This site was presented to the University and the Ho-tung Engineering Workshop now stands upon it.




FIRST FLOOR PLAN

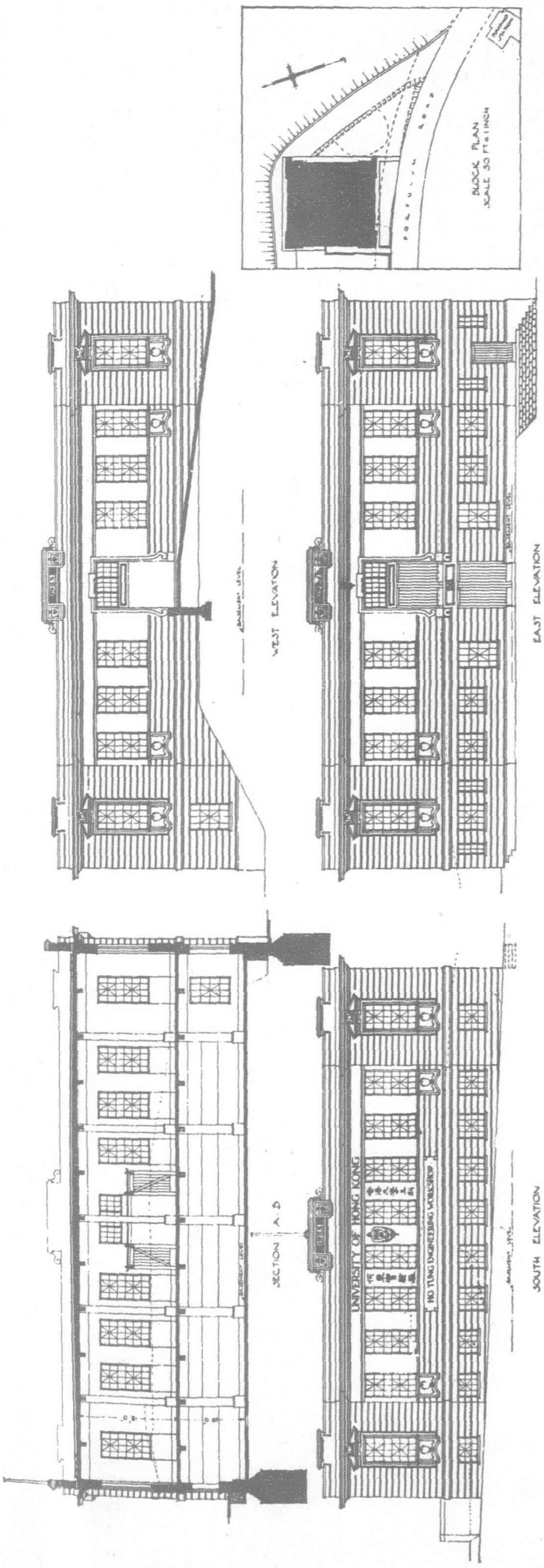
| | |
|---|---|
| FIRST FLOOR | 16' 0" HIGH |
| GROUND FLOOR | 20' 0" |
| BASEMENT | 10' 0 |




GENERAL PLAN

LEIGH & ORANGE
CIVIL ENGINEERS
AND
ARCHITECTS
HONG KONG

SCALE 50 FEET = 1 INCH




Complete plans have been drawn up to utilise the whole of this new site and proposals have been put forward so that in time practically all of the engineering workshops, laboratories and drawing offices will be placed on this site. The general appearance of the completed buildings are shown in Figs. 2 and 3.

It may be said at once that the site is ideal for the purpose. It consists of a piece of land upon which can be erected a rectangular building of dimensions of about 400-ft. long by 100-ft. wide. One side looks out right across the harbour, the view being unobstructed as the land slopes down rapidly towards the area. The site is about 180 ft. above the sea level and is so situated that any breeze in the atmosphere will ventilate the building.

## New Workshop

It is now proposed to deal in detail with the building already erected on this site and which roughly occupies about a quarter of the area. The Ho-tung Engineering workshop consists of a building enclosed by four brick walls with reinforced concrete floors and roof.

The building is a single storey 18 feet high and with a basement 12 feet high extending over the whole area, and the floor area of each is about 8,000 square feet.

The Main Floor accommodates a machine and erecting for the junior students where detailed instruction is given. There is also a general repair shop. The basement is used as a store, lavatory, and caretakers accommodation, and for a supplementary workshop.

The building is built in a style developed from the requirements of the accommodation to be provided with brick side walls, reinforced concrete floor and flat roof, both carried on reinforced concrete columns.

The window sashes are entirely of steel.

The Architects were Messrs. Leigh & Orange, Hongkong, and the Contractors were Messrs. Lam Woo & Co.,

In the students' workshop there are nine lathes of various makes where turning, screw-cutting, etc, may be practiced. There is also a semi-automatic copestone lathe, an electrically driven shaping machine, drilling machines, a long metal bench, with 12 vises, a marking off table, etc.

In the general repair shop, which is separated from the students' shop only by an expanded metal partition, the equipment includes an Universal milling machine, a planing machine, an electrically driven grinder, four lathes, a shaping machine, drilling Machines, sawing machine, pipe screwing machine etc.

In the blacksmiths' shop there are two power hammers, a forge with blower, swage block and stem, etc.

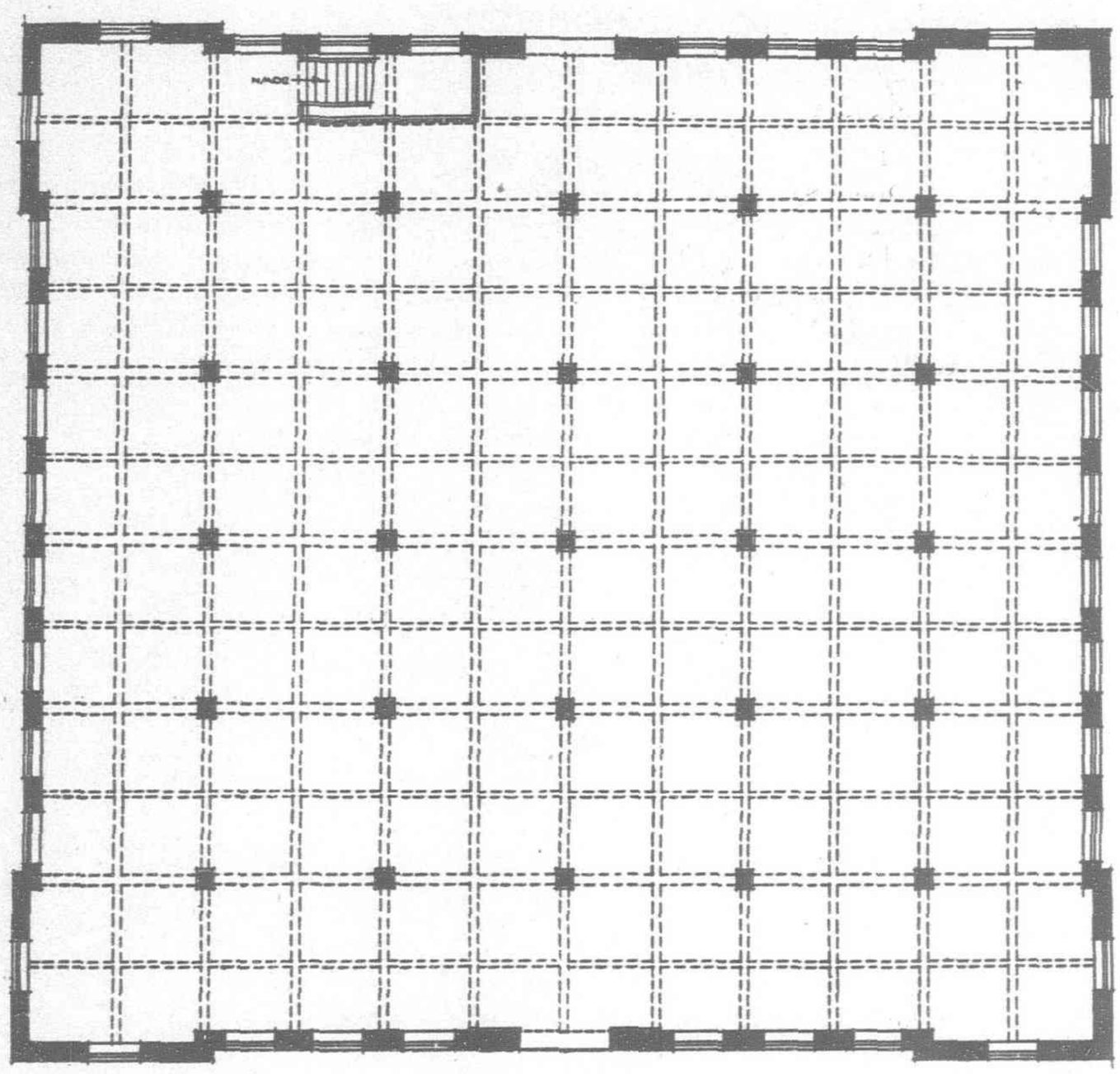
The carpenters' shop contains a hard planer, a circular saw, band saw and lathe.

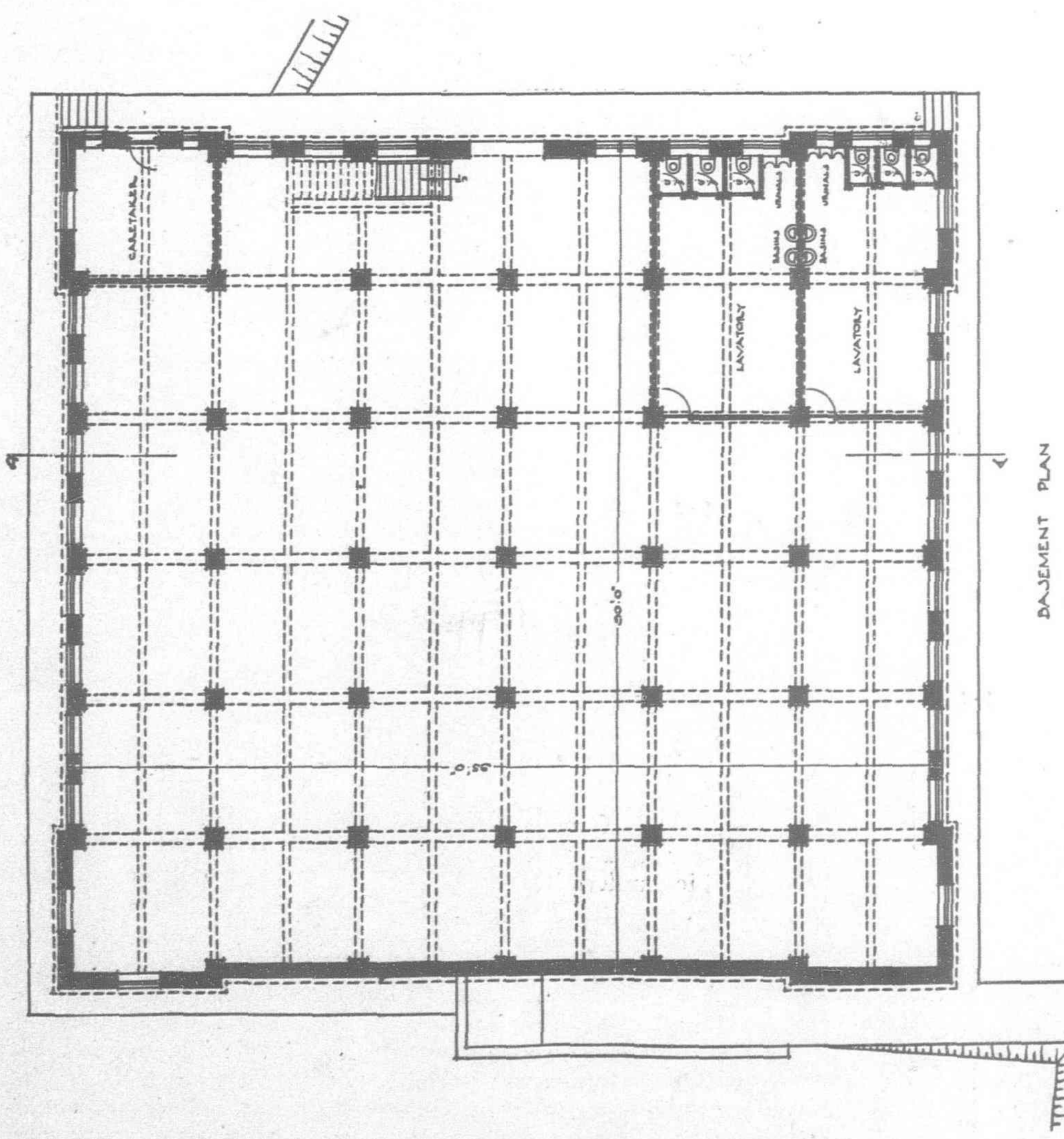
Power is supplied from the University Power Station situated about 300 yards away and transmitted by an overhead line.

The north side of the building overlooks the harbour and the south side adjoins the motor road which run round the island. The eastern and western ends of the building cannot be screened by any other buildings. Consequently it has all of the advantages of good light and excellent ventilation. It may be best described as an island site already levelled and of a flat area unusual at that level in Hongkong.

It is generally considered imperative that University engineering students should have some elementary instruction in workshop practice. In the University of Birmingham and the Imperial College of London, workshop practice and workshop equipment, tools, machines, etc, are provided. These two colleges are generally believed to offer the best training of the University type for engineers in England. Even if there were no University workshops in England experience with Chinese students in Hongkong has revealed the necessity for such practical instruction here.

The idea underlying the Ho-tung workshop is that all engineering students should have an opportunity to become acquainted with machine tools and the materials used in workshops. It is often argued that sutdents should go direct into a big works such as Taikoo and Kowloon Dock; the University workshop may be regarded as an introduction of such experience. Chinese undergraduates will not do rough work without this introduction. If they go into a large works knowing nothing of workshop practice they are nervous and do not learn under the unaccustomed conditions. It is too great a change from the conditions of school and





family life to be thrown into the rough and tumble of working alongside coolies without proper instructors. After a period in the University workshop they can do so.

It would probably be an advantage if the student should, on entry in his first year, spend half a day during term time and vacations in the University workshop. He certainly should spend all the first summer vacation and 'Xmas vacation in the University workshops. No doubt that will be arranged in time.

## Practical Experience

It is frequently urged by engineers in practice that the University graduate in engineering is "afraid to dirty his hands." That statement is frequently made concerning Chinese engineering graduates.

A difficulty in the past has been that the graduate has had very little opportunity to dirty his hands. Unless he becomes acquainted with machine tools under conditions such as obtain in a college workshop where an experienced instructor shows him how to handle the tool it is difficult to see how he can get the experience. There are no instructors in a big works and in the rush of modern industrial conditions a student fails to grasp what is being done unless he has had some preliminary training with machine tools.

In any large works in the Far East the graduate must know something about practical work before he enters or he will be unable to make good in the rush and tear of commercial life. He is drawn from a social class different to that which supplies the apprentice. He cannot afford to spend five years as an apprentice after spending four years in a University. Some modification of the apprenticeship conditions must be made in common fairness to the graduate.

It is believed that all engineering students, whether they subsequently specialise in Civil, Mechanical or Electrical Engineering, should become acquainted with workshop practice.

Therefore it is arranged in the University of Hongkong that all engineering students shall take instruction in the Ho-tung workshop during their first two years. After that period the mechanical engineers take further workshop instruction.

If any young Chinese should still have a notion that manual labor is undignified it might be well to remind him the H.R.H. the Prince of Wales, an Honorary Graduate of the University of Honkong, took a course of practical instruction in his youth in the Engineering workshops of Osborne Naval College. In actual fact, the short experience of a year's working in the Ho-tung workshop has proved that the Chinese undergraduate will take a very real interest in workshop practice under the conditions which now obtain.

When the University was founded, it was, in the words of the 1910 Blue Book issued as an appeal for funds, "resolved that the objects of the University are *(inter alia)* to afford a higher education

more especially in subjects of practical utility, applied science, medicine, etc." It was also stated by Sir Frederick Lugard that the Engineering graduates were to be employed in China. Unfortunately China, owing to the unexpected political developments, has not offered very great encouragement to young engineers. No doubt the time will come when China will absorb many thousands. Those with the requisite training and experience in Engineering will be in a position to take a prominent part in the development of China's natural resources.

There was a sincere belief during the first few years of the University that Hongkong engineering graduates would develop the natural resources of China (they are usually described as *vast* natural resources.) Some of us had visions of railway and road construction, river conservancy, flood prevention, mining work, etc., in China. Instead of that we have had chaos and civil war unceasing. Engineering schemes cannot be carried on without peace and financial credit. China has provided neither since the first batch of graduates left Hongkong in 1916. It is surprising, however, that engineering graduates have found employment in China despite these obstacles. Speaking generally, engineering graduates prefer life in the treaty ports to going inland, some refuse to go into China, whatever the inducements. They do not like to leave the family circle. It usually happens that the British engineering graduate goes away from his "home town." The Chinese engineering graduate seems most anxious to settle down in his native place so as to be near to his family.

## Tenacity of Purpose

Of all professions engineering is the one that tests a man's tenacity of purpose most. During a recent conversation an engineering manager in Hongkong said that of six Engilsh youths, of which he was one, who commenced a five years' apprenticeship, only two completed the course. An experience of ten years on the staff of the Universities of London and Birmingham provided the following estimates. Of 100 undergraduates who enter for an engineering course about 70 graudates ; of that 70 less than 50 earn a living as practical engineers after five years. The others have drifted into other kinds of work. In Hongkong, our experience is about the same except that out of 100 undergraduates only about 50 graduate. There is nothing unusual in that record. A number of the engineering students has been unable to complete the full course because of the financial difficulties of their families.

Chinese Engineering graduates have certain disadvantages as compared with Europeans that must be recognised. The average Chinese has a different temperament to the average Briton and he does not take so kindly to making a hobby of manual work. The Anglo-Saxon has a passion for the lever, the screw and the pulley. The educated Chinese of the old days had a passion for books. Chinese of the student class have not always the physique needed for a rough life. They do not seem willing to plod along in subordinate positions which offer good prospects later on. Time after time, a graduate will refuse an engineering job at $150 to take up a schoolmaster's job at $170 a month. He is probably a much better teacher of science because of his engineering training and no power can compel him to reverse his choice.

It seems natural to a Chinese graduate that an University degree shall be the open sesame to a well-paid career and sometimes he is down-hearted when he finds that there is no well paid job waiting for him. He finds it to be so in medicine and teaching—then why not engineering ? The usual experience of engineering is that such jobs in any country for young men are few and far between. In recent years the pay for many engineers in Government service in China has not been too secure. On the other hand, some of the Hongkong graduates have done extremely well.

Many of the engineering improvements that have been carried out in Canton have been accomplished by engineering graduates of the Hongkong University. Other graduates have become constructional engineers, railway engineers, commercial engineers and more than one in the Straits Settlements has specialised in motorcar engineering.

It is doubtful whether the University of Hongkong could, on its present site, accommodate more than 100 engineering students, Every province of China could absorb 100 graduates in government work alone if it were decided to proceed with road construction, railway building, water supply, etc.

Every European engineer nowadays who has any ambition tries to obtain a scientific or University education. The one great hope for China is improved communications. It may be necessary to obtaia foreign capital and foreign experience in the early days as it was in Japan ; but the Chinese themselves can carry out the work if they have had the requisite training.

Looking back on all the grave disadvantages under which the Engineering Faculty in Hongkong commenced its work, it is surprising that it has attracted more than 300 students, of whom 117 have graduated and 54 are now studying in the hope of gaining a degree. The sponsors of the University never realised that you cannot teach engineering with chalk and a blackboard. It was a harder task than that of making bricks without straw to make students realise how engines work through the medium of a foreign language. There were no properly designed laboratories in those early days. Since then there has been installed about £50,000 worth of equipment in the engineering laboratories and workshops.

For about fifteen years, a continuous stream of young Chinese have been passing through the extensive engineering and scientific laboratories of the University. The scheme of training was modelled on that of the London University and each year examination papers and the students' records of their own experience and drawing office work done in the drawing offices and laboratories have been sent to London with the object of ensuing that the London standard has been maintained. That such has been the case is perhaps the most satisfactory feature of the work already accomplished in the training of young engineers in Hongkong.

The course of training extends over four years, after matriculation. For the first two years a great deal of the students' time is occupied in the study of Science, Physics, Chemistry and Mathematics. In the last two years of the course he concentrates on engineering subjects. The student does, however, in the first two years, spend a certain amount of time attending engineering lectures, laboratories and the drawing office. He receives experience and instruction in the power station where all of the electric light and power used in the University is generated, and, there have always been certain facilities for workshop practice since 1913.

## Practice and Theory

In the Universities of Great Britain there is a divergence of views concerning the need of workshop instruction for students. In the University of Cambridge, there was, a few years ago, no such facilities the general idea being that the student made his own arrangements with firms. On the other hand, in the University of Birmingham, there are to be seen an extensive machine shop, a foundry and a smith's shop.

In Hongkong, the workship and laboratory equipment is not only useful in training the Engineering student. It is an object lesson to the other University students and the many visitors who come to see it.

"The essence of Knowledge is having it to apply it" said Confucius. It is because the workshop gives so many examples of the practical application of scientific principles that it is especially valuable to those who lecture upon engineering subjects. All sorts of problems connected with the method of cutting metals, the transmission of power by electricity or belts, the use of toothed wheels, etc, can be illustrated.

The Ho-turg engineering workshop is also valuable as a demonstration of how a workshop should be built so as to secure good ventilation, coolness and good lighting.

It is to be hoped that any wealthy readers who wish to see the natural resources of China developed will visit this workshop and the other University buildings. Plans have been prepared for an extension of the engineering buildings so that at some time all of the engineering practical work will be done in adjoining buildings. There is an ideal site. There is an opportunity to build a complete technical college that will house all of the extensive equipment that is now scattered over many rooms in different parts of the University.

## The Future

The average reader of a newspaper can usually jump to conclusions about political events much more readily than he can appreciate the tremendous effect upon the future of the human

*(Continued on page 232).*

# Korea and Irrigation

## Agricultural Possibilities of Korea

CHOSEN, or Korea, as the country is called in the West, is essentially an agricultural country, 80 per cent. of the whole population being engaged in agricultural pursuits of one kind or another, while as many per cent. of the total value of the products of various industries, agriculture included, and no less than 70 per cent. of the total value of exports are represented by agricultural products. The country is destitute of large plains, being prominently mountainous, but even at its present stage of agricultural development it produces not only enough to feed the people, but also to permit a good part of its products to be exported. For instance, during the year 1925, produced 73,274,080 bushels of rice, of which 23,103,680 bushels were exported, chiefly to Japan, bringing into the country no less than Yen 173,160,000.

But this does not mean that the country is highly developed agriculturally. On the contrary, in spite of all that Japan has done since the country was annexed by her in 1910, there are still left plenty of agricultural resources not yet utilized, and its advantages not yet fully availed of.

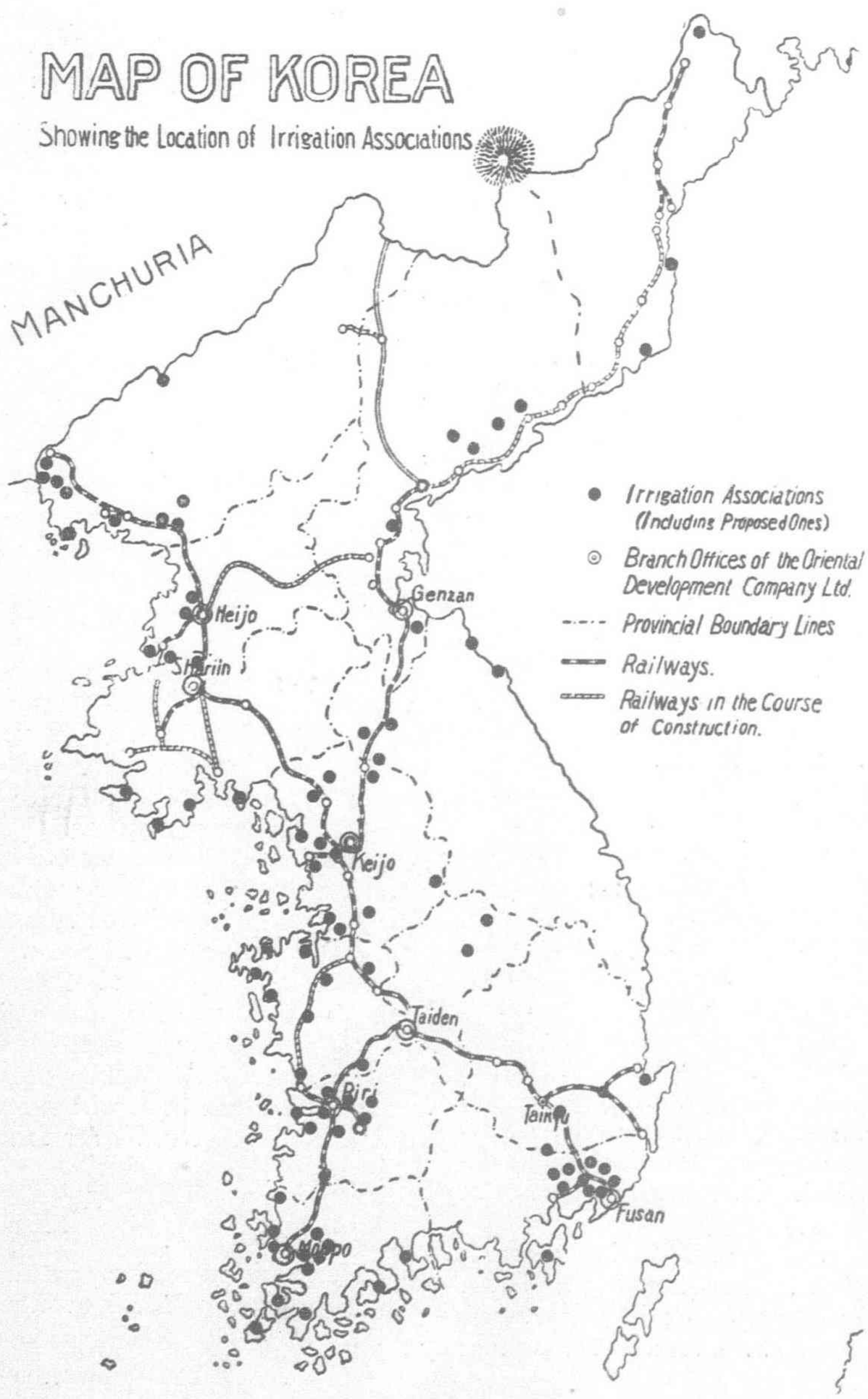
The physical conditions of Korea are very much the same as those of Japan, both being intersected in every direction by mountains with valleys more or less extensive between them, nor is there much difference in their soil conditions, Korea being, if not more, as fertile as Japan. In short, Korea is as much blessed by Nature as Japan in its agricultural resources, and could be made as productive, if developed properly. As it is, much of this natural gift is wasted upon it. To cite an example, the yield of rice in Korea for the past seven years averages 36.4 bushels per acre, whereas in Japan the same area produces as much as 72.5 bushels, very nearly twice as much. The difference may not be quiet so large in some crops, but there is always a difference greatly in favour of Japan in almost every line of agriculture. This tells on the one hand the backwardness of Korean agriculture, but on the other, the abundance of room for its further development.

## Necessity for Irrigation in Korea

There are many causes to which the above-mentioned difference may be attributed. The method of agriculture is one. By adopting better and wiser methods in preparing the soil, in the selection of seed and in the use of manure it would not be difficult for the Korean farmers to increase by a considerable amount their returns from the soil. Much improvement along these lines has been effected by the help of the Government, which, among other things established for the purpose a model farm on a large scale with its numerous branches where the farmers can obtain necessary guidance and instruction, and also seed stations to supply them with better seed. Much also has been done in this direction by the Oriental Development Company, Ltd. which has taken the lead in the improvement by practising these innovations on its own land, and thus supplying object lessons to native farmers.

But all these efforts would be of little purpose, if the one great defect in the form of the lack of proper irrigation systems remained unremedied. Korea stands in greater need of artificial water supply than Japan, being the drier of the two countries. There was a time when the country was better irrigated. A large number of reservoirs and barrages in the rivers once existent were, however, neglected so long that most of them had been washed away or become deserted swamps—some of the reservoirs were, it is even said, purposely filled in by local magistrates to increase their own land. When Japan came to rule the country, the first thing she did was to recover these lost means of irrigation, which, imperfect as they were, were far better than nothing.

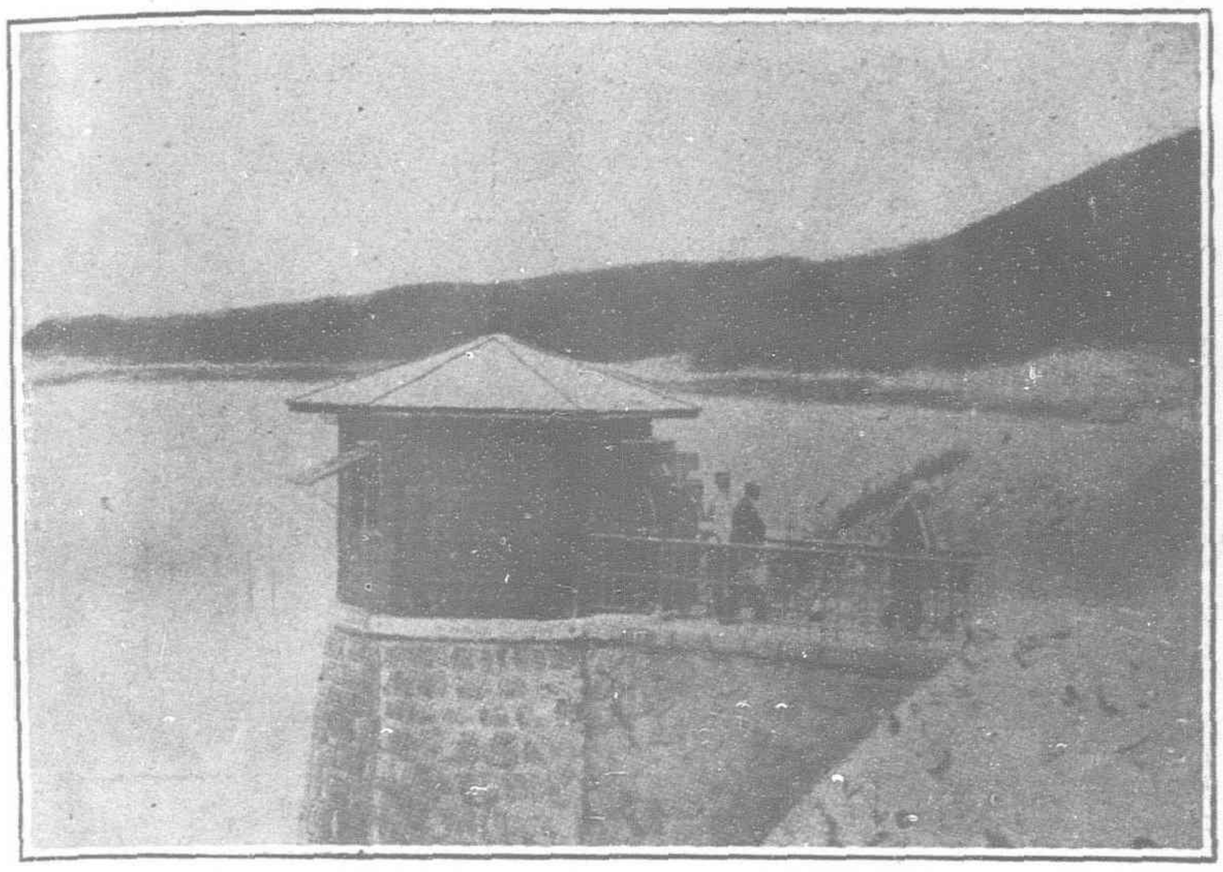
For this purpose and for the purpose of otherwise perfecting the irrigation systems of the country, the Government encouraged interested parties to form themselves into associations by granting such associations subsidies, and by authorizing them to levy on their members money, labour and other contributions necessary for the prosecution of their work, while in some districts, where the necessity was especially urgent, the Government took the matter in its own hands. Thus came into being the irrigation associations destined to play an important rôle in the agricultural development of the country, and these we intend to describe in detail later on.



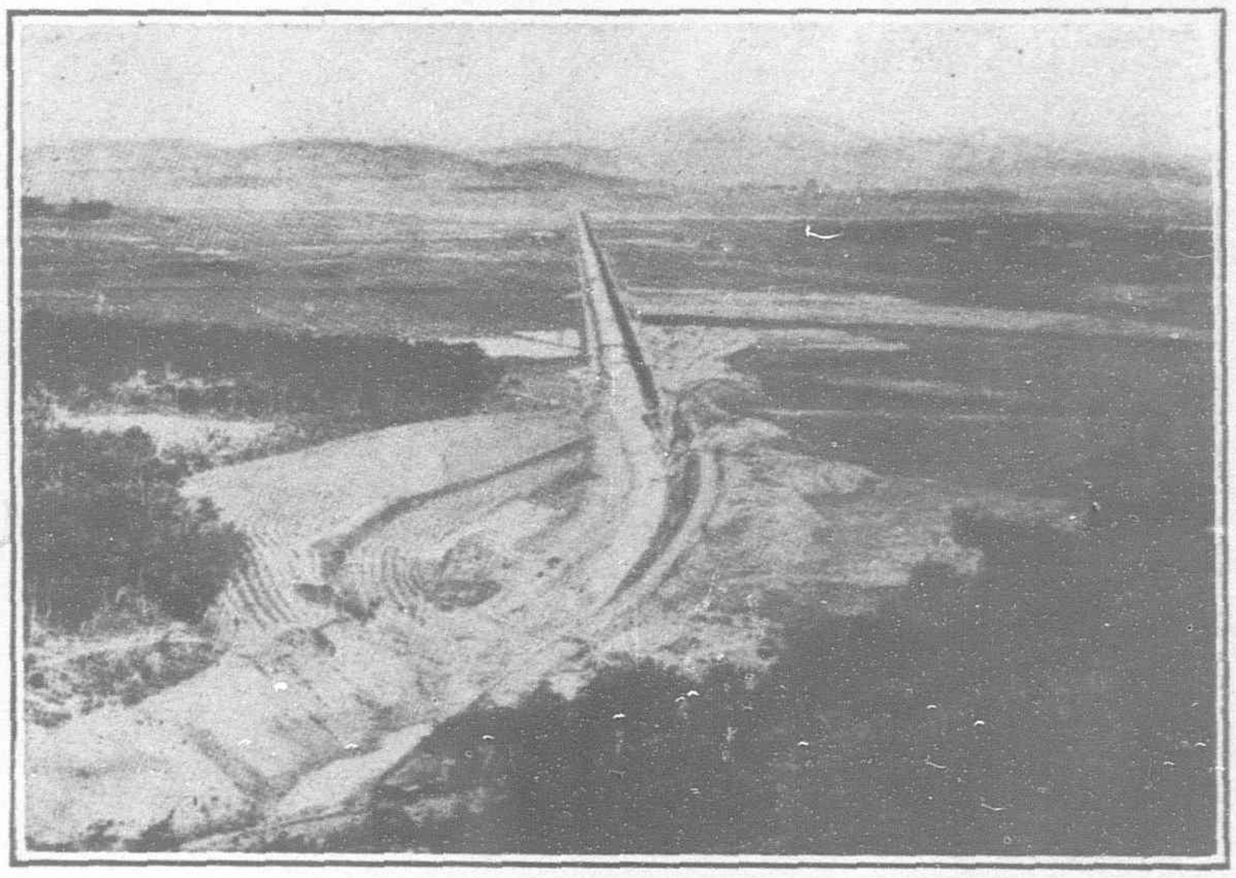

## Rice and Irrigation

None but the inhabitants of a country where people live on rice can really understand what irrigation means to them. Rice cannot be raised without water and that abundantly. Ours is no arid country such as is found in the Western Part of the United States, and any other crop but rice can be grown without irrigation. In our mind, therfore, irrigation and rice-cultivation are inseparably associated, making growing wild grasses, or oats or wheat under irrigation, as practised in the above-mentioned regions in America, almost inconceivable to us. Naturally irrigation pays well here, for we cannot do without rice and rice cannot be grown without irrigation.

Now, of this much-needed rice, Japan produces in average years 287 million bushels and Korea 69 million bushels, of which about 24 million bushels are exported to Japan. Still Japan has to import about 15 million bushels of foreign rice every year. Add to this the fact that our population is



Works of the Irrigation Association at Josen



Part of the Western Main Ditch at Josen

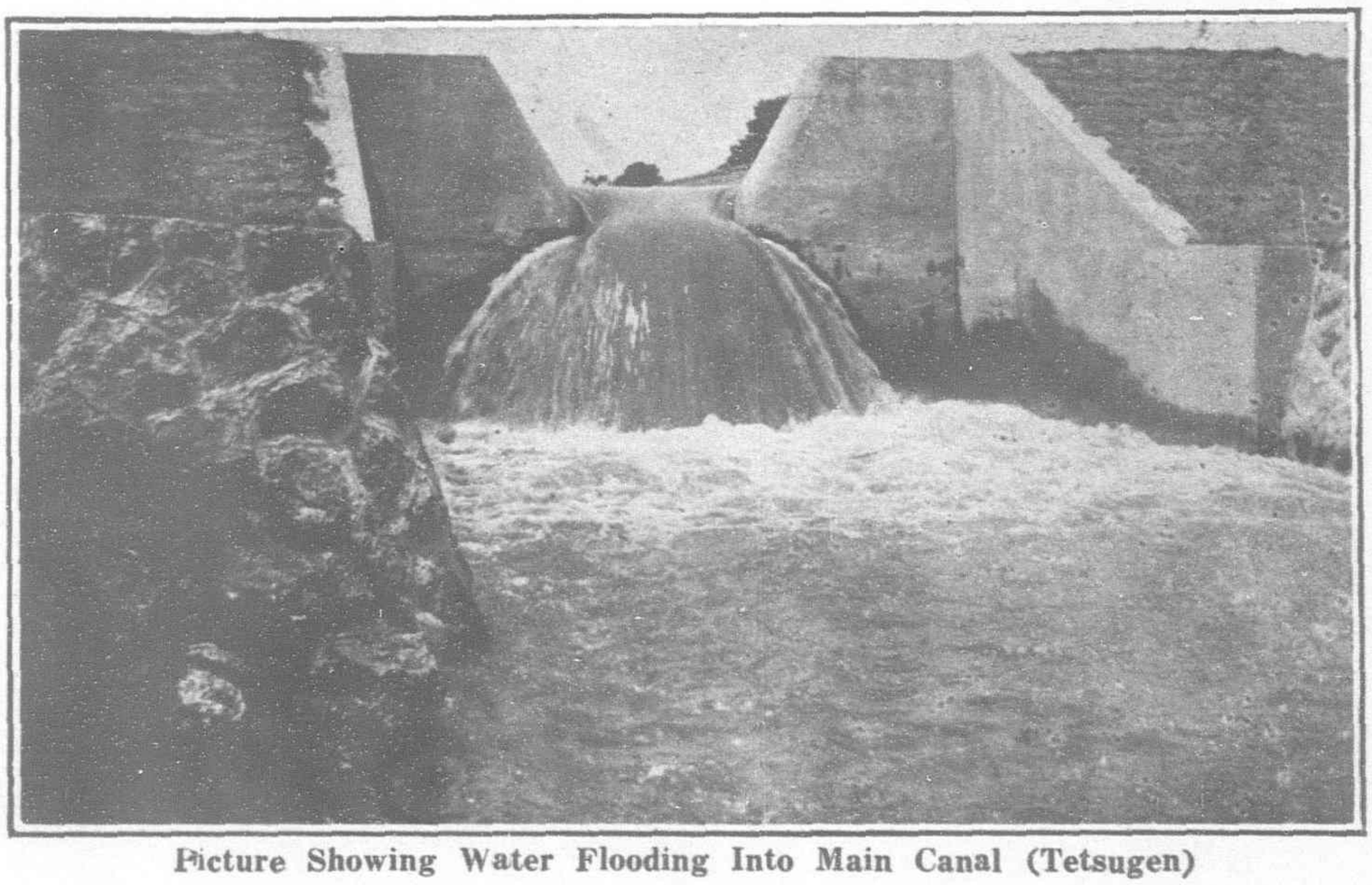
increasing at the rate of six hundred thousand a year, it would not be difficult to form an idea how great is the importance attached by us to the question of rice-production which of necessity involves the question of irrigation.

Korea is looked upon as the most promising field for the cultivation of rice. With its abundance of sunshine, its absence of devastating storms in the flower season and its greater room for the extention of area to be devoted to the crop, the country has many advantages, over Japan. But it lacks irrigation. Of about 3,797,000 acres of rice-fields which we find in the country only about 955,000 acres are provided with any system of irrigation worthy of the name. The rest is chiefly dependent on rain water, the consequence being that the crop suffers very often more or less severely from the want of rainfall. The Japanese proverb "No famine in dry years" expresses just the opposite of what is true of Korea where dry years are always poor years. With irrigation properly provided, dry years ought to be better years for Korea as well as for Japan.

## Irrigation Associations

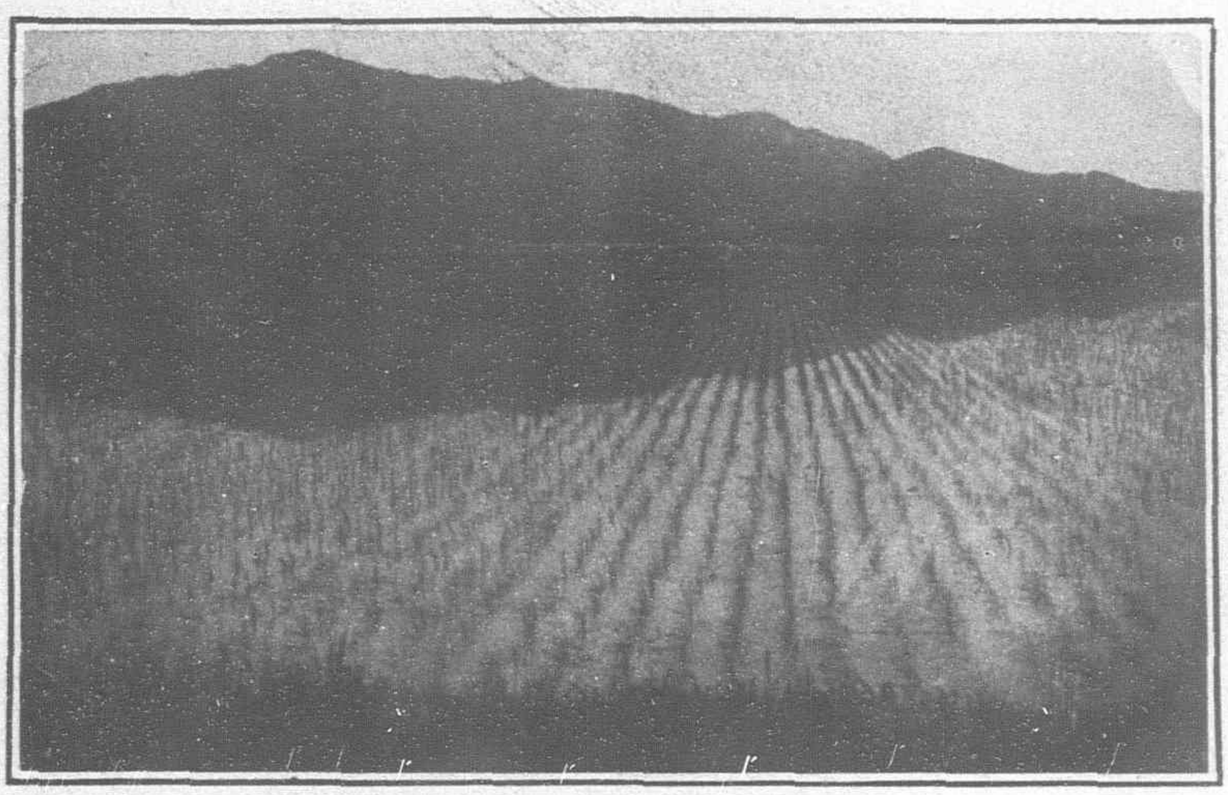
Many attempts have been made to provide the country with necessary irrigation systems by both Government and people at various times in the past and with varying degrees of success. But the one most important, having undoubtedly the most far-reaching effect in the irrigation of the country is the organization of the Associations for Irrigation which we are going to describe in the succeeding pages.

The Irrigation Associations of Korea or the Chosen Suirikumiai, as they are called in Korea, had their beginnings in 1906 when regulations were first enacted to govern them, though it was not till Decebmer, 1908 that the first association was formed under those regulations. Those regulations were soon found too brief and in many respects inadequate to meet the new requirements which the progress of the times had given birth to. They were, therefore, thoroughly revised, and promulgated in 1917 in the form of an ordinance. This ordinance was entitled the "Ordinance concerning Irrigation Associations in Korea" and is still in force. (It may be remarked that an ordinance has in Korea the same force as the law in Japan for all intents and purposes.) In 1918 further regulations were enacted concerning irrigation associations by which the Government was authorized to subsidize them to the extent of not exceeding 15 per cent. of the cost of the works undertaken by them, The same year the Government programme for the increase of the rice production of Korea was laid down, and under this programme investigations on an extensive scale were made throughout the country. The investigations revealed rice-fields in want of water-supply, dry farm-lands which can be profitably turned into rice-fields, areas on the slopes of hills and mountains, riverine waste-lands, sea shores, etc., which can be reclaimed and be made rice-fields, as well as the sources of water to be utilized, and methods of utilizing them. The results were placed at the disposal of those interested in irrigation schemes and other undertakings of land-improvement. Further aid was given them, when the above regulations concerning subsidies were revised and in addition a new set of regulations was promulgated in 1920 expanding the limit of subsidies to irrigation works and other works for land improvement to 20 per cent., in the case of the works for the improvement of irrigation, to 25 per cent., in the case of dry farm-land being converted into rice-field, and to 30 per cent., in the case of the land other than farm-land being converted into rice-field. Thanks to these measures new associations were organized in rapid succession, and in September, 1926, there were in Korea 80 associations covering among them 287,140 acres. Of these associations as many as 55 have been established since 1921, showing that the increase is gaining rapidity as time rolls on — a fact speaking highly in favour of the system. Many more are in contemplation, and it will not be long before the number will be doubled or even trebled.

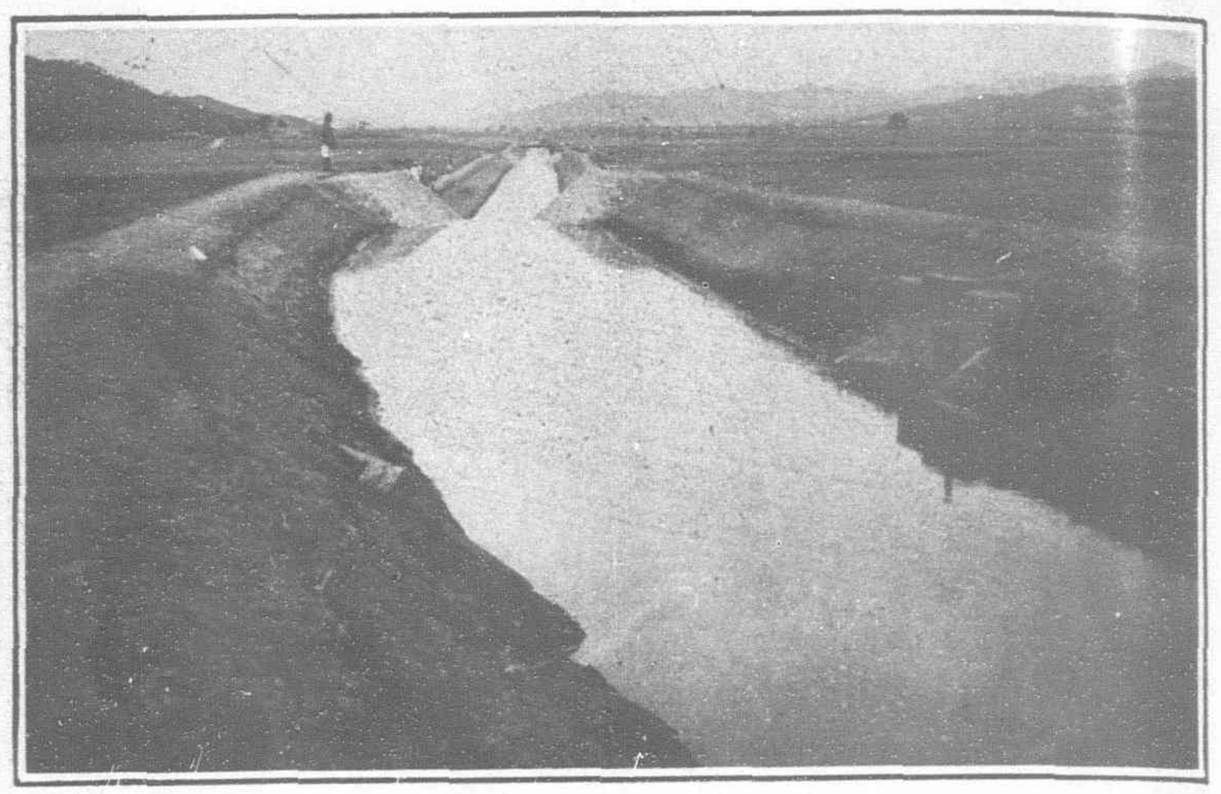


Picture Showing Water Flooding Into Main Canal (Tetsugen)

The most noted of the associations are Ekiyoku, Chu-o, Taisho, Kofu, Dojin, Fukei, Rineki, Josen and Hakusen Irrigation Associations. They are, on the whole, doing very well. The increase of the yield due to the irrigation works is in general remarkable, the most conspicuous case being that of the Hokumen Association where the yield after the construction of the works is reported to have been 7 times as large as that before.



Paddy-field Irrigated (Tetsugen)



Canal Through Tetsugen Fuji Plantation

In the case of the Ekiyoku Association, the largest association so far organized, the increase is reported to have been very nearly 3.5 times. An association on a large scale is now in the course of organization under the name of Toshin Irrigation Association. Association charges average for recent years Yen 9.80 per tan (.245 acres) per annum. The cost of the works so far built is Yen 68,360,000 for all associations.

## Chief Features of the Irrigation Associations in Korea, the "Irrigation District" of United States Compared

The irrigation association in Korea resembles in many respects the American institution of the "Irrigation District."

It is a juridical person, quasi-municipal in nature, established for the purpose of irrigation, drainage and the prevention of flood. The district of an irrigation association consists of land to be benefitted by its projects, and the members, of those who own lands, or houses in that district, the leaseholders of State lands being regarded as the owners.

It is thus essentially the same thing as the "Irrigation District" in the United States, so far as legal texts go. But it should be noticed that there is a great practical difference between the objects of the two institutions. Korea is no arid country; most crops can be grown there without irrigation. It is rice and rice only, which needs plenty of water to cultivate it, that requires irrigation. A Korean irrigation association has, therefore, for its object, in ninety-nine cases out of a hundred, the irrigation of paddy-fields where this most valuable of grains in the East is to be grown, or the creation of such fields by means of irrigation. It never falls to its lot to achieve such wonders as an "Irrigation District" often does in the arid West. The land is inhabited before there is any construction of canals or ditches and is valuable enough without irrigation. Irrigation merely makes it more productive and therefore more valuable. But the merit of it is that it is safer. Water can be obtained at comparatively small cost and that plentifully, while there is absolutely no danger from the absence of settlers on lands under irrigation.

For its organization the Law provides that five or more of the prospective members of the association shall become its organizers, draw up the association agreement according to the rules established by the Governor-General of Korea, and after having obtained the consent of one half or more of the prospective members of the association owning two-thirds or more of the total area of the prospective district, shall obtain the sanction of the Governor-General of Korea.

It is the same in principle as the State law of Montana which provides that the petition for organization must be signed by a majority of the number of holders of a title to land susceptible of irrigation by proposed works, who must also represent a majority in acreage of such lands. The Korean law is stricter, as it requires "two-thirds or more of the area of the proposed district" to be represented.

An irrigation association is directed by a chief who is appointed by the Governor of the province where the association is located for a term of four years. In other words it has a Government appointee as its head, and is therefore more under Government control than an "Irrigation District." It is further provided that, when the Governor-General of Korea deems it necessary, he may cause a mayor, a district headman or an island headman to discharge the duties of an association chief. It has besides a board of advisers to which important matters must be referred for consideration and advice. The advisers are elected by the members from among themselves, which election must be sanctioned by the Provincial Governor.

An irrigation association is authorized to levy charges (asessments), labour and goods on its members. Levying labour and goods may not be known in any "Irrigation District," though we read that certain canals in Utah were built largely by the labour of the settlers. It is provided in the law that the collection of these charges and other levies and the pressure to be brought to bear upon a case of default are to be made in the same manner as in the case of national taxes.

An irrigation association is authorized to contract loans, when necessary, for the payment of the principal and interest of its debts, or for the projects conducive to its permanent good or to meet emergencies. Unlike the Irrigation District in America it is not authorized to issue bonds, but borrows from such large financial institutions as the Oriental Development Company or the Chosen Industrial Bank, which, in their turn, issue bonds to raise the amount, the consequence being that it is watched by these large

Experimental Plantation of Tetsugen, Korea

institutions with a vigilance and efficiency such as an "Irrigation District" can never be subjected to at the hands of individual bond-holders, making its position doubly secure. It may contract temporary loans to meet defrayment within the limits of the sums established in the Budget, but these must be repaid with the receipts belonging to the same fiscal year. It is further provided that any association cannot be dissolved until after all its debts have been redeemed.

The irrigation association is placed under rigorous Government supervision, immensely more rigorous than an "Irrigation District" in the United States has ever been. A glance at the law governing it (which is annexed) will show that from beginning to end, at almost every step it takes in any direction, the sanction of the Government in one form or another is required. Too subservient on the part of the members, it may appear, but it is due in no small measure to this strict supervision that no failure, to speak of, has ever occurred among them.

Moreover the association is subsidized to the extent of 20 to 30 per cent. of the cost of the works according to the nature of the project it undertakes, making such a supervision all the more necessary on the part of the Government.

An idea of such supervision may be gathered from the following provisions of the Law :

Irrigation associations are, in the first instance, supervised by mayors, district headmen, or island headmen, in the second instance, by Provincial Governors, and in the third instance, by the Governor-General of Korea. But in case a mayor, district headman or island headman discharges the duties of an association chief or the district of an association extends over two or more urban or rural districts, the association is, in the first instance, supervised by the Provincial Governor, and in the second instance, by the Governor-General of Korea. In case the district of an association extends over two or more provinces, the association is, in the first instance, supervised by a Provincial Governor designated by the Governor-General of Korea, and in the second instance, by the Governor-General of Korea.

The sanction of the Governor-General of Korea must be obtained :

(1) When changing association agreements ;

(2) When raising loans, or fixing or changing methods to raise such loans or interest thereon or methods to redeem them ;

(3) When fixing or changing the project of an association.

The sanction of Provincial Governors must be obtained :

(1) For matters relating to methods by which to manage and dispose of immovable property ;

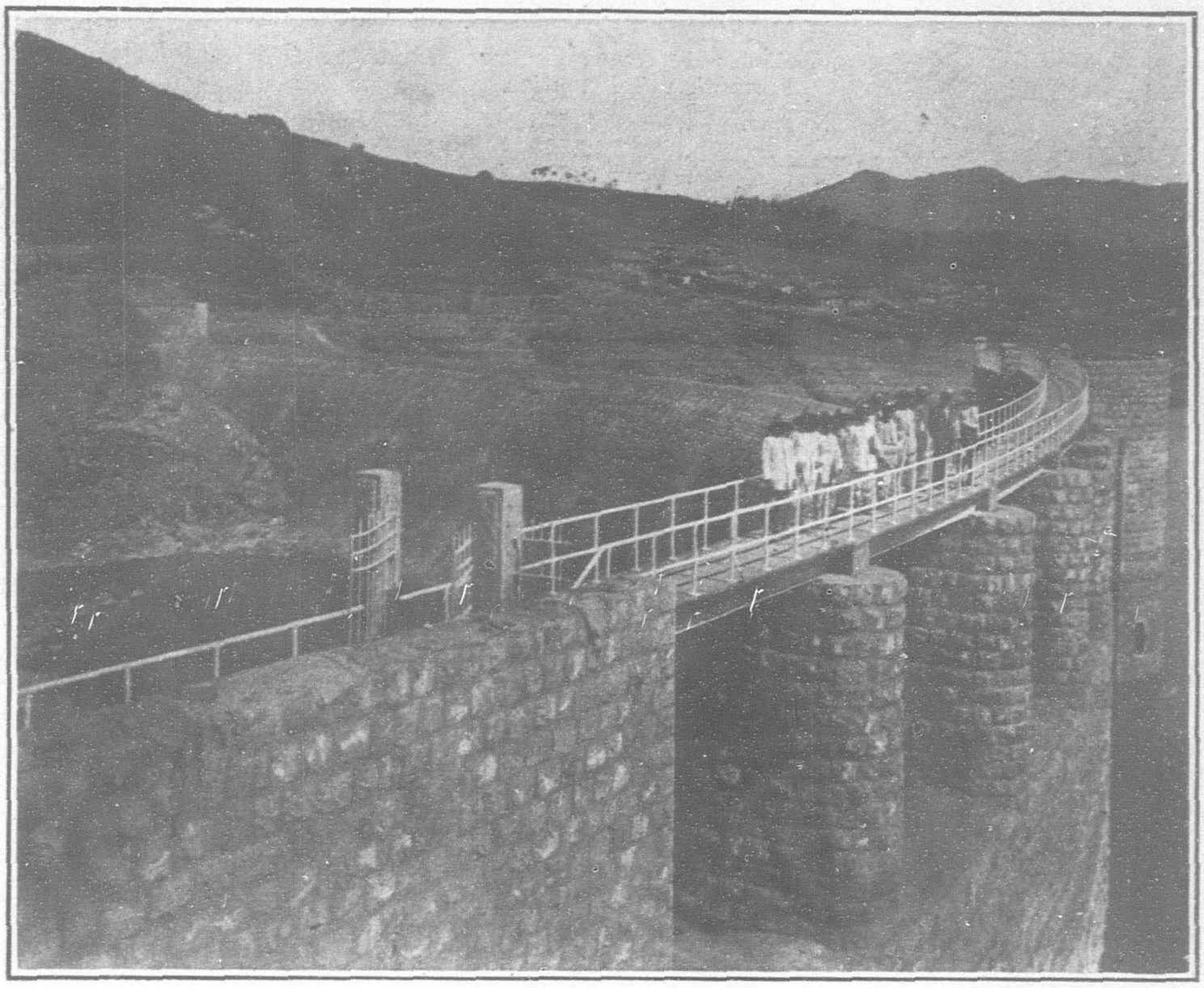
(2) For matters relating to methods by which to create, manage and dispose of money and articles in reserve, provided, however, that this does not apply in case where these are disposed of for the object for which they are reserved.

(3) When making contribution of money or granting subsidies ;

(4) When contracting temporary loans ;

(5) When taking over new obligations or relinquishing required rights not provided in the Budget.

As to the past record of the Korean Irrigation Associations, it was undoubtedly more fortunate than that of their sister institutions in America. With all the good works they have achieved, the history of the "Irrigation Districts" of America is chequered, while the past record of the Korean associations is on the whole one of constant progress and development. There is nothing to boast of in this, however, because they are of more recent origin which enabled them to take lessons from the experience of similar institutions of other countries, America included.



**General View of Daika Dam**

An idea of such progress and development may be obtained from the following two tables :—

IRRIGATION ASSOCIATIONS IN KOREA (March 31, 1925)

| Names of Associations | Dates of Formation | Acreage under Irrigation | Amounts of Loans Yen |
|---|---|---|---|
| Yokkō (West) ... ... | Dec. 1908 | 1,200 | — |
| Rin-eki ... ... ... | Feb. 1909 | 8,190 | 613,003 |
| Mitsuyo ... ... ... | „ „ | 1,805 | 136,500 |
| Majyūhyō ... ... ... | Mar. „ | 786 | 57,500 |
| Zen-eki ... ... ... | Nov. 1910 | 3,540 | 15,000 |
| Kinkai ... ... ... | „ 1912 | 4,893 | 357,200 |
| Taisho ... ... ... | Oct. 1914 | 18,703 | 4,285,108 |
| Geijitsu ... ... ... | Feb. 1916 | 3,430 | 498,400 |
| Kofu ... ... ... | May „ | 10,498 | 1,215,300 |
| Jōnan ... ... ... | Sept. „ | 639 | 37,700 |
| Daicho ... ... ... | Nov. „ | 4,427 | 413,750 |
| Sankyōsen ... ... | May 1917 | 1,960 | 227,970 |
| Reika ... ... ... | „ 1919 | 600 | 3,600 |
| Girinchi ... ... ... | June „ | 679 | 3,000 |
| Bunmaku ... ... ... | July „ | 1,299 | 522,600 |
| Shinkoku ... ... ... | Dec. „ | 194 | 21,112 |
| Katō ... ... ... | Jan. „ | 1,710 | 384,500 |
| Ekiyoku ... ... ... | Feb. „ | 23,079 | 5,091,500 |
| Tosen ... ... ... | Mar. „ | 360 | 38,300 |
| Choshitei ... ... ... | July „ | 154 | 23,200 |
| Meigantei ... ... ... | „ „ | 441 | 100,000 |
| Dōjin ... ... ... | Sept. 1920 | 10,119 | 2,954,600 |
| Daisan ... ... ... | Nov. „ | 3,308 | 842,300 |
| Shinnanshin ... ... | Dec. „ | 343 | 86,000 |
| Oun ... ... ... | „ „ | 1,303 | 273,000 |
| Kan-an ... ... ... | Mar. 1921 | 2,824 | 1,134,400 |
| Sekigū ... ... ... | „ „ | 174 | 6,800 |
| Fumon ... ... ... | Apr. „ | 931 | 32,700 |
| Hokumen ... ... ... | May „ | 752 | 272,700 |
| Daidō ... ... ... | Aug. „ | 784 | 166,000 |
| Yōtō ... ... ... | Sept. „ | 1,519 | 491,400 |
| Rinshinmen ... ... | Nov. „ | 1,066 | 255,930 |
| Shodō ... ... ... | Dec. „ | 1,056 | 594,400 |
| Gohōtei ... ... ... | Jan. 1922 | 1,237 | 122,900 |
| Eihoku ... ... ... | „ „ | 1,659 | 557,000 |
| Ankaku ... ... ... | „ „ | 2,190 | 428,000 |
| Jinshido ... ... ... | Mar. „ | 423 | 39,900 |
| Ryōzan ... ... ... | „ „ | 2,867 | 1,010,000 |
| Chūshū ... ... ... | Apr. „ | 835 | 158,000 |
| Kojo ... ... ... | „ „ | 1,225 | 289,450 |
| Rentei ... ... ... | July „ | 495 | 164,000 |
| Ryushin ... ... ... | Aug. „ | 417 | 118,000 |
| Chu-o ... ... ... | Oct. „ | 21,195 | 5,360,000 |
| Tomen ... ... ... | „ „ | 2,041 | 658,000 |
| Shinnan ... ... ... | „ „ | 657 | 184,050 |
| Hakusen ... ... ... | Jan. 1923 | 7,387 | 1,258,800 |
| Kōsei ... ... ... | Feb. „ | 3,246 | 787,000 |
| Yōsen ... ... ... | Mar. „ | 1,458 | 289,900 |
| Onjō ... ... ... | „ „ | 1,987 | 305,000 |
| Nandai ... ... ... | „ „ | 1,100 | 115,100 |

IRRIGATION ASSOCIATIONS IN KOREA (March 31, 1925)

| Names of Associations | Dates of Formation | | Acreage under Irrigation | Amounts of Loans Yen |
|---|---|---|---|---|
| Josen ... ... ... | Apr. | ,, | 7,595 | 1,631,800 |
| Fuhei ... ... ... | ,, | ,, | 8,820 | 2,205,000 |
| Shunryu ... ... ... | ,, | ,, | 2,717 | 265,600 |
| Hekiseitei ... ... ... | Oct. | ,, | 140 | 19,800 |
| Kanan ... ... ... | Dec. | ,, | 4,601 | 1,354,000 |
| Hakuyō ... ... ... | May | 1924 | 551 | 115,747 |
| Jujō ... ... ... | ,, | ,, | 907 | 62,500 |
| Reikō ... ... ... | Dec. | ,, | 6,370 | 1,443,000 |
| Ryōtoku ... ... ... | Feb. | 1925 | 3,048 | 233,000 |
| Reinan ... ... ... | ,, | ,, | 2,528 | 1,016,000 |
| Kan-an (Second) ... ... | Mar. | ,, | 1,421 | 495,600 |
| Total (61) ... ... | | | 201,883 | 41,853,220 |

Remarks: From the date of this table, which is the latest available, to September, 1927, nineteen associations were established bringing the total up to eighty on the latter date.

REVENUE AND EXPENDITURE OF IRRIGATION ASSOCIATIONS IN KOREA PAST TWELVE YEARS COMPARED

| | 1913 | 1914 | 1915 | 1916 | 1917 | 1918 |
|---|---|---|---|---|---|---|
| Acreage under Irrigation .. | 25,330 | 29,518 | 47,057 | 51,144 | 67,289 | 73,387 |
| REVENUE (in yen) | | | | | | |
| Levies .. | 79,875 | 191,493 | 196,980 | 233,643 | 304,935 | 365,287 |
| Incomes from property .. | 671 | 568 | 2,273 | 3,077 | 4,586 | 4,487 |
| Receipts from loans .. | 250,000 | 175,000 | 528,000 | 772,000 | 1,570,000 | 559,000 |
| Subsidy .. | — | — | — | — | — | — |
| Other reccipts.. | 40,361 | 38,983 | 67,219 | 103,381 | 135,179 | 332,957 |
| Total .. | 370,907 | 406,044 | 794,472 | 1,112,101 | 2,014,700 | 1,261,731 |
| EXPENDITURE | | | | | | |
| For management | 27,794 | 42,901 | 53,419 | 51,762 | 70,091 | 88,677 |
| For undertaking | 248,722 | 197,814 | 461,643 | 740,440 | 1,458,138 | 739,492 |
| For repayment of loans .. | 80,855 | 125,733 | 221,309 | 271,228 | 323,020 | 387,790 |
| Other expenses | 13,536 | 39,596 | 58,101 | 48,671 | 163,451 | 45,772 |
| Total .. | 370,907 | 406,044 | 794,472 | 1,112,101 | 2,014,700 | 1,261,731 |

| | 1919 | 1920 | 1921 | 1922 | 1923 | 1924 |
|---|---|---|---|---|---|---|
| Acreage under Irrigation .. | 76,090 | 78,459 | 109,794 | 121,888 | 182,451 | 187,060 |
| REVENUE (in yen) | | | | | | |
| Levies .. .. | 510,127 | 916,586 | 1,081,765 | 1,410,555 | 2,128,516 | 2,769,151 |
| Incomes from property .. | 8,260 | 12,710 | 7,637 | 8,504 | 10,339 | 16,195 |
| Receipts from loans.. .. | 426,656 | 2,035,863 | 5,953,961 | 5,083,066 | 8,052,832 | 5,851,642 |
| Subsidy .. | 11,000* | 35,400* | 1,010,415* | 1,120,877* | 1,118,516 | 1,823,724 |
| Other receipts.. | 224,450 | 444,103 | 1,366,058 | 1,498,648 | 1,463,562 | 1,638,824 |
| Total .. | 1,168,893 | 3,409,262 | 8,409,421 | 8,000,773 | 12,773,765 | 12,099,536 |
| EXPENDITURE | | | | | | |
| For management | 132,890 | 198,419 | 260,924 | 346,486 | 485,545 | 509,078 |
| For undertakings | 529,826 | 2,436,979 | 6,357,178 | 5,835,239 | 9,235,703 | 7,481,579 |
| For repayment of loans .. | 436,959 | 615,982 | 1,359,574 | 1,582,431 | 2,308,512 | 3,297,193 |
| Other expenses | 69,218 | 157,882 | 431,745 | 236,617 | 744,005 | 811,686 |
| Total .. | 1,168,893 | 3,409,262 | 8,409,421 | 8,000,773 | 12,773,765 | 12,099,536 |

*Shows that the amount is excluded from the total.

## The New Project for Increasing the Rice Production of Korea Vis-a-vis Irrigation Associations

There is on foot in Korea an extensive scheme for increasing the country's rice production. The scheme, which is planned by the Government, aims at increasing the production by about 40 million bushels through the improvement of land, which include irrigation as well as reclamation by other means, and the improvement of agricultural methods, which includes the selection of seed, the use of manure, etc. Naturally the greater part of the work belonging to land-improvement will fall upon the irrigation associations now in existence or to be formed hereafter. Every facility, financial or otherwise, will be placed at their disposal to ensure the success, upon which the welfare not only of the Koreans as producers, but of the Japanese as consumers, greatly depends. Here are outlines of the scheme, as it is worked out and published by the Government-General of Korea.

A. Areas to be improved: In twelve years from 1926, altogether 857,500 acres of lands are to be improved, 453,250 acres by improving their irrigation systems, 220,500 acres by turning what have hitherto been dry-fields into wet ones, and 183,750 acres by reclamation and drainage.

B. How to be financed: The funds required for improving the above-mentioned areas of 857,500 acres are estimated to amount to Yen 303,250,000. Of this, Government subsidy will amount to Yen 65,070,000, while Yen 39,484,000 is to be supplied by the promoters of the works. The balance, Yen 198,696,000, is to be furnished by the Oriental Development Company and the Chosen Industrial Bank, the two largest financial institutions in Korea serving agricultural interests, while on the other hand, the Government Deposit Bureau will advance to these institutions at low interest a sum equivalent to half the amount required, while the other half will be raised between the two institutions by the issue of their own debentures.

Side by side with the above measures, a thorough improvement in the method of cultivation, selection of seed, use of manure, etc., (mentioned as "agricultural improvement" hereafter) is to be carried out on all the rice fields throughout the country, involving a further expenditure of Yen 40,000,000, which amount is to be raised in like manner. In addition to this, a sum of Yen 8,442,000 has been appropriated by the Government to be paid as salaries and wages to those officials to be employed in connection with the project, a special organ for the supervision being created in the Government. Altogether the project involves no less than Yen 351,692,000. To tabulate :—

(1) Area covered by the project ... ... 857,500 acres
(2) Total Expenditure ... ... ... Yen 351,692,000
Consisting of :
(*a*) For land-improvement ... ... Yen 303,250,000
(*b*) Salaries, wages, etc., to be paid by Government ... ... ... ,, 8,442,000
(*c*) For agricultural improvement ... ,, 40,000,000
(3) The required amount of Yen 351,692,000 will be furnished as follows :
(*a*) By Government to be paid in form of salaries, etc. ... ... ... Yen 8,442,000
(*b*) By Government as subsidy for land-improvement work ... ... ... ,, 65,070,000
(*c*) By Promoters ... ... ... ,, 39,484,000
(*d*) By above-mentioned two institutions ,, 238,696,000

As a result of the project, it is estimated that the production of rice will be increased by 40,672,000 bushels as follows :—

(*a*) Increase owing to improvement effected on 857,500 acres of land ...23,609,600 bushels
(*b*) Increase owing to agricultural improvement ... ... ... ...17,062,400 bushels

40,672,000 bushels

Irrigation Associations are to participate largely in this extensive project. For further particulars as to their nature and work, the legislation relating to them, which is appended, may will be referred to.

The annual requirement of funds for the project is given in the following table :—

ANNUAL AMOUNT REQUIRED FOR THE PROJECT CLASSIFIED (Unit 1,000 yen

| Year | Total Amount | Classified according to uses: Land-Improvement | Salaries, to be Paid by Gov. | Agricultural Improvement | Classified according to suppliers: Government Subsidy | Government Salaries, etc. | Promoters | Financial Institutions |
|---|---|---|---|---|---|---|---|---|
| 1926 .. | 21,683 | 13,069 | 706 | 7,908 | 2,598 | 706 | 1,379 | 17,000 |
| 1927 .. | 25,778 | 22,402 | 815 | 2,561 | 4,681 | 815 | 3,282 | 17,000 |
| 1928 .. | 26,306 | 24,727 | 799 | 780 | 5,281 | 799 | 3,226 | 17,000 |
| 1929 .. | 26,101 | 24,177 | 799 | 1,125 | 5,167 | 799 | 3,135 | 17,000 |
| 1930 .. | 25,879 | 24,047 | 607 | 1,225 | 5,137 | 607 | 3,135 | 17,000 |
| 1931 .. | 25,879 | 24,047 | 607 | 1,225 | 5,137 | 607 | 3,135 | 17,000 |
| 1932 .. | 25,869 | 24,047 | 597 | 1,225 | 5,137 | 597 | 3,135 | 17,000 |
| 1933 .. | 25,869 | 24,047 | 597 | 1,225 | 5,137 | 597 | 3,135 | 17,000 |
| 1934 .. | 25,869 | 23,675 | 597 | 1,597 | 5,137 | 597 | 3,135 | 17,000 |
| 1935 .. | 25,736 | 23,675 | 464 | 1,597 | 5,137 | 464 | 3,135 | 17,000 |
| 1936 .. | 25,736 | 23,675 | 464 | 1,597 | 5,137 | 464 | 3,135 | 17,000 |
| 1937 .. | 26,596 | 24,790 | 464 | 1,342 | 5,388 | 464 | 3,744 | 17,000 |
| 1938 .. | 22,234 | 18,996 | 464 | 2,774 | 3,930 | 464 | 840 | 17,000 |
| 1939 .. | 22,157 | 7,876 | 462 | 13,819 | 2,066 | 462 | 1,933 | 17,696 |
| Total .. | 351,692 | 303,250 | 8,442 | 40,000 | 65,070 | 8,442 | 39,484 | 238,696 |

## The Oriental Development Company, Limited, and Its Relation to the Project for Increasing the Rice Production of Korea

Agriculture is, as we have said before, the mainstay of Korea. The greater number of the poeple live by it and upon its successful conduct depens much of the well-being of the community as a whole. If, therefore, there were in the country an institution whose duty it is to serve its agricultural interests, that institution would, if properly conducted, be in a position to render to it the greatest amount of good and be sure to prosper. The Oriental Development Company, Limited, is exactly such an institution. It has behind it a record of useful service of twenty years and before it a promising task of helping forward a backward yet a willing people on to civilization and prosperity.

The operations of the Company may be classified under three main heads : 1. The ownership, improvement and settlement of

land, including irrigation, afforestation and the procurement and distribution of immigrants ; 2. The making of loans to municipalities, industrial enterprises and settlers as a further aid to the development of the country ; 3. Investments in banking and agricultural corporations formed to aid business in the territory included within the Company's sphere of operatior, and in supplying settlers with agricultural implements, live stock, fertilizers, seed, etc.

The sphere of operation of the Company which was for the first ten years confined to Korea was later extended to Manchuria and other parts of Eastern Asia, including Mongolia and Central China, while its furthest outpost has reached one of the South Sea Islands.

Meanwhile the capital of the Company, originally Yen 10,-000,000, has been increased to Yen 50,000,000, of which Yen 35,-000,000 is paid up and of which 60,000 shares representing 3,000,000 yen are owned by the Government. To further amplify its resources, debentures have been issued from time to time both at home and abroad, amounting at the close of March, 1926 to Yen 177,460,398. In the issue of such debentures, the Company enjoys a special privilege in that it is authorized to issue them up to ten times its paid-up capital, whereas ordinary companies in Japan are only allowed to issue their debentures to the amount of thier paid-up capital under the provisions of the Commercial Code. It may also be noted that the holders of the Company's debentures have a preferential claim to the asset of the Company over any of its other creditors under the provisions of its Act.

Twice in the past, the Company has issued its debentures abroad, once in France and once in the United States of America. The French loan, amounting to Fcs. 50,000,000, issued in March 1913, bearing interest at 5 per cent and sold at the price of Fcs. 96¾, and to mature in September 1942, has already been paid back. The American loan, amounting to $12,900,000, bearing interest at 6 per cent and sold at $92 and to mature March 1953, was issued in March 1923. Of this loan $1,417,000 was paid back up to March 1926, the amount outstanding being $18,483,000. All others are domestic loans.

These debentures are regarded by the Japanese public as the safest investment, and their price ranks always among the highest, Government securities excepted. A semi-Government institution has never been insolvent, though it may sometimes be reduced to sad plights, and this knowledge must evidently have much to do with their popularity.

Among other things, the Company owns large areas of land in Korea amounting to 189,381 acres and valued on the Company's inventory at Yen 17,869,799.99 which represents the original cost. Thanks, however, to the general economic progress of the country, the price of land has so considerably risen of late that the land in question is now valued at, at least, three times its original cost.

Of the many important tasks with which the Company has occupied itself in the past the one which can claim the foremost place is what it has done for the agricultural development of Korea. Here the Company has large areas of land of its own, consisting largely of paddy fields. On these areas has been practised every possible improvement thus setting an example to the farmers at large. Besides, an extensive area of the State land lying idle has been rented and reclaimed, the total area of such land reaching 9,722 acres by the end of March, 1926. Afforestation on an extensive scale has also been conducted on the State land, over 100,935 acres in extent, in addition to 74,512 of its own. In addition to these undertakings, a service equally important in its bearing upon the agricultural development of the country has been rendered in the form of financial aid given to private enterprises with objects identical with its own. At present, Korea forms but part of the vast field in which the Company operates, but needless to say, its efforts for its development are not a whit relaxed on that account. Far from it, a work even exceeding any of the works it has ever undertaken both in magnitude and in importance is now demanding its attention. The work is none other than the project for increasing the rice production of Korea alluded to above.

The relations of the Oriental Development Company to the new project will be of a double character, that of a contracter and that of a financier. In the former capacity, the company will execute the land-improvement work on account of other parties, irrigation associations among them, with which it may enter into contract. The company has long been successfully engaged in irrigating its own extensive land, and is in possession of both means and experience. It has been proved more than once, both at home and abroad, that the construction of irrigation works of any magnitude may be conducted more profitably by centralized organizations of some kind equipped with necessary staffs and controlled by parties accustomed to business and to the carrying out of large enterprises than by associations of mere farmers organized for the purpose. It may therefore be reasonably expected that no small number of such associations will prefer getting the Company to do what otherwise they must do by themselves. This active participation in the work of land improvement on account of other parties will prove no small work for the Company when the construction work under the project is under way in earnest.

Far more important, however, will be what the Company must do in its other capacity, namely as a financier. The Company's relation with irrigation associations has always been intimate in this respect. In order to bring their projects to a successful issue, these associations must have strong financial backing and the Oriental Development Company has been one of their strongest supporters, the amount outstanding of the loans made to them at the end of March, 1926, being Yen 12,195,297. This relation will naturally be more strengthened by a new tie which the new project will create between them. To facilitate the prosecution of these works, a new department has just been created in the Company.

The financial relation of the Company with the new project has already been touched upon when the project was dealt with on one of the foregoing pages. It was then pointed out that, of the total amount Yen 351,692,000 which is required for the project, Yen 8,442,000 would be paid by the Government in the form of salaries, wages, etc., in connection with it, and Yen 65,070,000, also by the Government, in the form of subsidy, while Yen 39,484,000 would be supplied by the promoters themselves, leaving a balance of Yen 238,696,000 to be raised between the Oriental Development Company and the Chosen Industrial Bank. Now the share to be borne by the Oriental Development Company is estimated to amount to Yen 113,348,000. Of this, Yen 56,674,000, that is, half the amount will be supplied to the Company by the Government in the form of Government low-interest loans.

The other half, also amounting to Yen 56,674,000, will be raised by the Company by the issue of its debentures.

The following two tables show respectively the annual amounts of the low-interest Government loans to be granted to the Company and the annual requirement of the funds which must be raised by the Company by one way or another.

(1) AMOUNT OF LOW-INTEREST LOANS TO BE GRANTED ANNUALLY TO THIS COMPANY BY THE GOVERNMENT IN CONNECTION WITH THE PROJECT

| Year | Funds for Land-Improvement | Funds for Agricultural Improvement | Total |
|---|---|---|---|
| 1926 ... ... ... | 2,273,000 | 1,383,900 | 3,656,900 |
| 1927 ... ... ... | 3,610,000 | 448,000 | 4,058,000 |
| 1928 ... ... ... | 4,055,000 | 136,500 | 4,191,500 |
| 1929 ... ... ... | 3,968,500 | 197,050 | 4,165,550 |
| 1930 ... ... ... | 3,944,000 | 214,200 | 4,158,200 |
| 1931 ... ... ... | 3,943,500 | 214,550 | 4,158,050 |
| 1932 ... ... ... | 3,944,000 | 214,200 | 4,158,200 |
| 1933 ... ... ... | 3,943,500 | 214,550 | 4,158,050 |
| 1934 ... ... ... | 3,851,000 | 279,300 | 4,130,300 |
| 1935 ... ... ... | 3,850,500 | 279,650 | 4,130,150 |
| 1936 ... ... ... | 3,851,000 | 279,300 | 4,130,300 |
| 1937 ... ... ... | 3,914,500 | 232,850 | 4,149,350 |
| 1938 ... ... ... | 3,556,500 | 485,450 | 4,041,950 |
| 1939 ... ... ... | 969,000 | 2,418,500 | 3,387,500 |
| Total ... ... | 49,674,000 | 7,000,000 | 56,674,000 |

*Notes.*—Funds for land-improvement are to be supplied by the Chosen Industrial Bank and this Company half and half, while the funds for agricultural improvement are to be so supplied at the rate of 35 for this Company against 65 for the Chosen Industrial Bank.

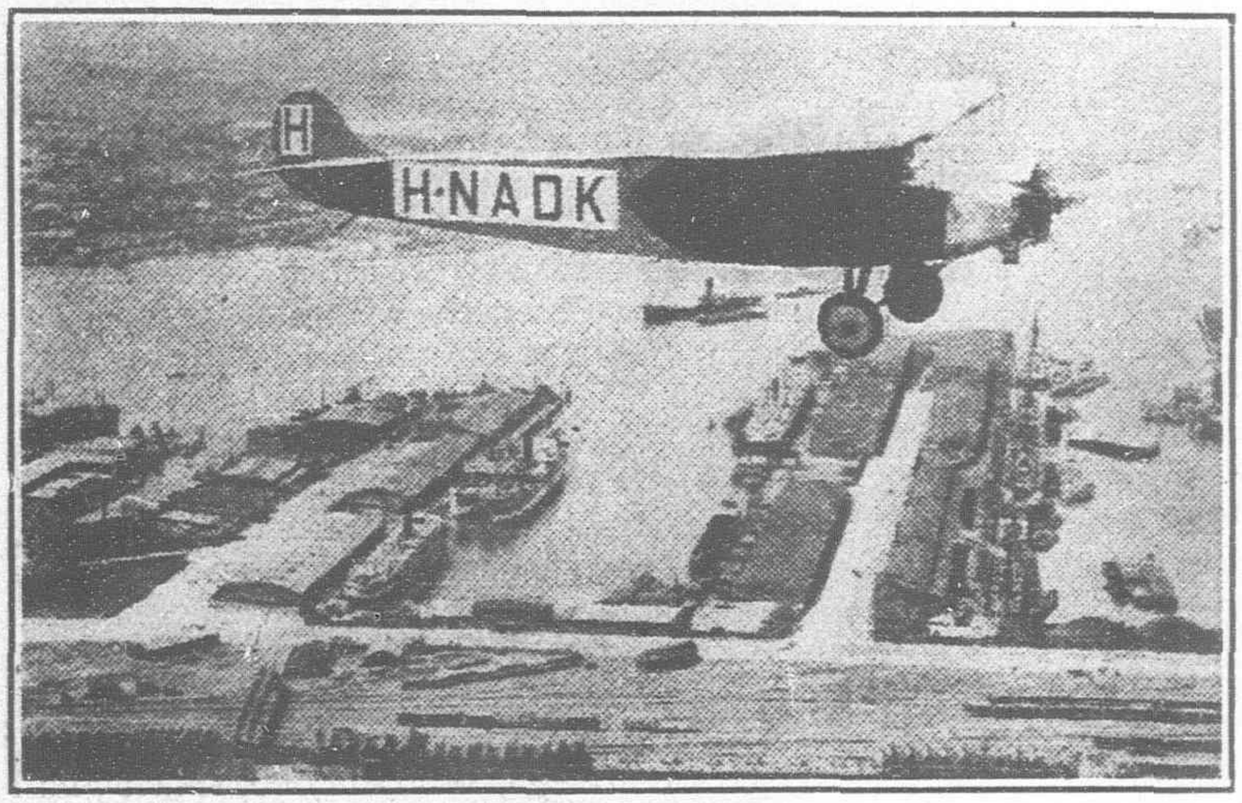
(2) ANNUAL REQUIREMENT OF THE COMPANY IN CONNECTION WITH THE PROJECT

| Year | Annual requirements | Amounts to be called-in | Amounts actually required | Sum-total up to respective year |
|---|---|---|---|---|
| 1926 ... ... | 3,656,900 | — | 3,656,900 | 3,656,900 |
| 1927 ... ... | 4,058,000 | — | 4,058,000 | 7,714,900 |
| 1928 ... ... | 4,191,500 | — | 4,191,500 | 11,906,400 |
| 1929 ... ... | 4,165,550 | — | 4,165,550 | 16,071.950 |
| 1930 ... ... | 4,158,200 | — | 4,158,200 | 20,230,150 |
| 1931 ... ... | 4,158,050 | 30,000 | 4,128,050 | 24,358,200 |
| 1932 ... ... | 4,158,200 | 100,000 | 4,058,200 | 28,416,400 |
| 1933 ... ... | 4,158,050 | 190,000 | 3,968,050 | 32,384,450 |
| 1934 ... ... | 4,130,300 | 290,000 | 3,840,300 | 36,224,750 |
| 1935 ... ... | 4,130,150 | 390,000 | 3,740,150 | 39,964,900 |
| 1936 ... ... | 4,130,300 | 500,000 | 3,630,300 | 43,595,200 |
| 1937 ... ... | 4,149,350 | 620,000 | 3,529,350 | 47,124,550 |
| 1938 ... ... | 4,041,950 | 750,000 | 3,291,950 | 50,416,500 |
| 1939 ... ... | 3,387,500 | 890,000 | 2,497,500 | 52,914,000 |

# Berlin to Peking by Air

## Fokker Machines to be Used

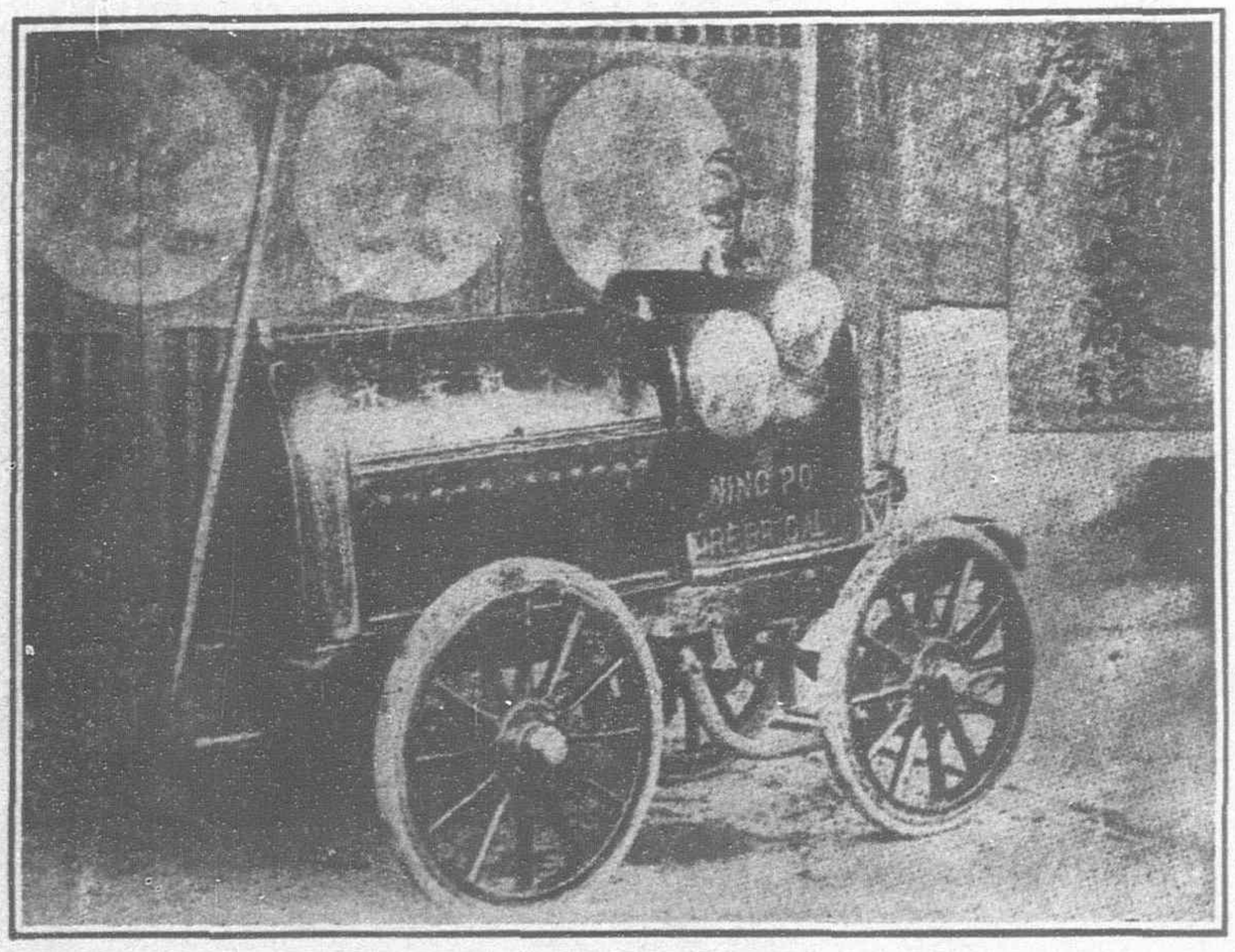
It is of interest to learn that it is the intention of the K.L.M. Royal Dutch Air Lines, for whom the agents in London are Messrs. Wm. H. Muller, Ltd., 66-68, Haymarket, S.W.1, to maintain the projected Berlin-Peking air service by the same type of Fokker monoplane, namely, a " F. Va," carrying eight passengers, as used by a wealthy American flying enthusiast for a trip from London to Cairo and back, the start of which was made from Croydon Aerodrome on March 1.




It is not the first time that a passenger 'plane of the K.L.M. has been used for flights beyond Europe. The flight from Amsterdam to Batavia two years ago was a proof of the exceptional suitability of Fokker machines for long flights, and not many companies, it is claimed, can compete with them for comfort. Good views are obtainable by passengers from the large cabin windows, there being no machine parts to obstruct the view in any way. The picture above illustrates a Fokker machine in flight.

# New Fire Engine Devised by Chinese

An ew kind of fire engine was recently devised by Lo Chuan-lan, owner and manager of Heng Dah & Co., 656-7 Burkill Road, Shanghai and a public demonstration was held at Jih Hui Hsiang, Nantao, Shanghai, on December 15, 1926. The new fire engine consists of two main parts set on four wheels. The motor and engine of an ordinary automobile occupies the front part, and at the back is a double-barrelled pump connected with the front by means of a belt. The pump is manufactured by the company. In fighting a fire, the water hose is attached to the pump, one end leading to the hydrant and the free end spouting water. The new engine enables the hose to release a stream of water more than 100 feet high. There is a long hand-brake in front of the motor, by means of which the engine is driven. It is compactly small and is known as the No. 6 small-sized Fire Engine. The company has also devised a fire engine of larger dimensions, capable of discharging a water line 250 feet in height. Orders for these engines have been placed with the company by many fire brigades in Shanghai, Ningpo, Nantung, and elsewhere. The company was established about 15 years ago as a motor repairing and supplies company.



**The Engine**

# The New Ho-Tung Engineering Workshop

*(Continued from page 225)*

race of new inventions and the works of the engineer. A great deal of nonsense is written about " the soul destroying effect of machinery." There is nothing on earth more soul destroying than abject poverty caused by famine or flood and bandits such as may be seen in some parts of China. The works of the engineer can and, in time, will remedy that.

When people, in their ignorance, talk about materialism it may be as well to point out what machinery has done for Hongkong. One example will suffice. The wretched rickshaw puller kills himself in four or five years and is lucky to earn twelve dollars a month. His labour is the work of an animal. The Chinese chauffeur is gradually replacing the rickshaw puller. Petrol and an engine does the work that killed the rickshaw puller. The chauffeur gets $40 to $50 a month, is healthy, well fed and well clothed. His life is an easy and an intelligent one.

There is a demand for those who do things in China. An engineering training teaches anyone to construct rather than to criticise.

A course of training in an University workshop was thoroughly enjoyed by H.R.H. the Prince of Wales. It is also appreciated by engineering students in the University of Hongkong. an experience of fifteen years in close contact with Chinese Engineering gradnates makes the writer believe that the workshop training is perhaps the most important portion of the training in the Engineering departments of the University. He believes that every Chinese student, whether he proposes to enter the professions of law, politics or to earn a living in commerce would benefit by a few months of instruction in an Engineering workshop.

C. A. M. S.

**Plan to Organize Power Commission.**—The Ministry of Communications of Japan is making arrangements for the organization of the proposed Electric Power Investigation Commission which it is to establish in connection with plans for a permanent electric policy.

It is expected that the commission will be organized in July and be composed of Government officials and representatives of the leading power firms. Ten persons have been nominated by the Ministry authorities as possible members.

There are to be investigations of water power concessions, the possibility of unifying electric lines, the fixing of spheres of power supply, matters concerning electric lighting and fees, the utilization of steam power and other important problems.

Those invited to participate are: Mr. S. Wakao, president of the Tokyo Electric Light Company, Dr. H. Tachikawa, engineer of that company, Mr. Y. Matsunaga, vice-president, and Mr. Y. Wakaomi, of the Toho Electric Power Company, Mr. J. Masuda, vice-president, and Mr. S. Arimura, engineer, of the Daido Electric Power Company, Mr. Y. Hayashi, president of the Ujikawa Electric Power Company, Mr. S. Fukunaga, director of the Nippon Electric Power Company, Mr. H. Tanaka, president of the Kyto Electric Light Company, Mr. K. Inouye, director of the Electric Bureau in the Ministry of Railways, Mr. Shima, engineer of the Home Ministry and Dr. M. Shibusawa, professor of the Tokyo Imperial University.

# Engineering Notes

**Driven Air Compressors.**—The Westinghouse Brake & Saxby Signal Co. Ltd., have received an order from the Metropolitan Vickers Electrical Co., Ltd., for 82 Electrically Driven Air Compressors, type C. M. 38, for the supply of compressed air to the brake equipments on electric locomotives of the Great Indian Peninsular Railway.

---

**Results Apparently Satisfactory**—About a year ago a smaller furnace of only 10 tons' capacity was used. The fuel depot at Tokuyama found that by mixing one part of the shale oil produced with two of crude Borneo oil a product of satisfactory quality for use in navigation was obtained. Distilling will be continued in the new 40-ton furnace until the end of November, for the purpose of determining if it produces an oil equal in quality to that of the 10-ton furnace. Present indications are that the results are satisfactory, and it appears likely that the construction of the remaining furnaces will be commenced early in 1927.

---

**Shale Obtainable at Slight Expense**—The forty-eight 40-ton furnaces will cost $2,000,000 to $2,500,-000, or about $970,000 less than the Scotch type of like capacity. In addition to shale oil, of which an annual output of 25,000 tons is anticipated, such by-products as crude paraffin, sulpate of ammonia, and coal tar are to be produced. The shale from which the oil is extracted is found in great quantities at the Fushun Collieries, and can be mined at slight expense, as it lies between the coal seam and the overburden. The successful exploitation of the shale-oil project will render Japan much less dependent on outside sources of heavy oil.

---

**Oil Shale of China.**—Some progress appears to have been made in the oil shale development in Fushun, China. We have from time to time given many details of projects in relation to these operations. During last year experiments with a furnace or still of a capacity of ten tons were made. This produced an oil which by admixture with oil from Borneo was converted into a good fuel for the Japanese Navy. The proportion of Fushun and Borneo oils is not clear to us, we having been informed from one source that 33 per cent. of Borneo oil was necessary, and from another source that 66 per cent. of Borneo oil was needed. This still, however, was not large enough to give a commercial test, so a forty-ton still was erected, which was ready for work at the end of last September. Owing to technical difficulties it was not put into operation until October 7, on which day the first oil was obtained. The nature of this oil we do not so far know ; but we believe that by the end of the year the Fushun coal works were in negotiation with the Japanese Navy for taking over the development of the undertaking. The colliery company had already prepared plans for forty-eight stills or furnaces each of forty tons capacity at a cost of from four to five million yen. The yearly output of oil from these was estimated at 25,000 tons with an input of 700,000 tons of shale. This gives about 3½ per cent. of oil, which appears a very poor result, even if attained, for the investment of so much capital. The Japanese Navy however, is hard put to it for sources of fuel oil under its own control, or thereabouts, and it is possible that an agreement may be come to.

---

**Rice Wharf to be Built at Nantao, Shanghai.**—Negotiations are under way between the Jen Ku Tang, corner of Chung Hua Road and Great East Gate, Nantao, Shanghai, a guild of Nantao rice merchants, and Yen Wei-lien, Chen Yin-chuan, and Chen Shan-sheng landowners, for the rental of a piece of land about 380 feet long along the Chinese Bund, Nantao, for the purpose of constucting a rice wharf. As there is at present no special wharf for loading and unloading rice in Nantao and much difficulty is experienced by the use of ordinary launch wharfs, the inland rice merchants are beginning to show unwillingness to ship rice to Shanghai. It is expected that a special rice wharf will be completed in 1927. The president of the board of directors of the guild is Yeh Hui-chun.

**Automatic Telephones in Tientsin.**—The Telephone Administration of Tientsin is planning the installation of modern automatic telephones in the foreign concessions. The construction of new offices in the East Office of the Administration is nearing completion. Installation of instruments will soon begin.

---

**Kwangtung Highway Bureau.**—The Highway Bureau of the Department of Construction, Kwangtung province, has established five sub-bureaus to take charge of road building in the 94 districts of the province, namely, the eastern sub-bureau at Chaochow taking charge of 24 districts, the southern sub-bureau at Kochow taking charge of 15 districts, the western sub-bureau at Shiuhing taking charge of 18 districts, the northern sub-bureau at Shiuchow taking charge of 14 districts and the Hoinam sub-bureau at Kiungchow taking charge of 13 districts. Ten districts around Canton are placed under the direct control of the Bureau's head-office.

---

**Canned Food Factories in Chekiang.**—The Sheng Sun Canned Food Factory at Shihweikiao Yuyao, Chekiang province, was opened in 1923 with an authorised capital of $50,000 of which $25,000 has been paid up. The factory is divided into can-making, food canning and can sealing departments. Attached to the factory is a rice polishing mill, which is operated during the slack season of the year. The factory is equipped with an oil engine of 16 H. P. and sets of machinery for making tin cans and other purposes. In preparing food, which is cooked or otherwise prepared, a small hole is left at one end of the can, which is then boiled in a big iron boiler to a sufficiently high temperature to expel the air from the can. The hole is then sealed with melted tin. Food so canned can be kept for four or five years in good condition.

Canned bamboo shoots are the most important product of this factory, four varieties being turned out. The "jade-tooth" shoots are yielded by bamboo growing in a wild state in the hilly regions of Yuyao and make excellent food by reason of its succulency and tenderness. The *Tai Sheng* is the shoots of a species of bamboo known as *tai chu* and also tastes deliciously. The *Hsien Pheng* is yielded by the *mao chu* (*Phyllostachys Pubescens*) in two crops, the winter crop being more highly prized than the spring crop on account of its tenderness. The *Yu Meng Sheng* is prepared from the Swallow Bamboo Shoots and the "Dragon Barbel Bamboo Shoots" The factory produces every year about 300,000 cans including bamboo shoots and other kinds of vegetables and fish, no meat having yet been prepared.

The factory's canned bamboo shoots are in great demand on the markets of north China such as Tsingtao, Tientsin, Peking and Manchuria. Of the 300,000 cans of food produced and sold by the factory every year, the *Hsien Sheng* forms about 40-50 per cent and the *Yu Meng Sheng*, about 30 per cent. The products are sold under the brand of the Chinese character "Sun." When exported to other ports, the cans are packed in wooden boxes of five dozen each. The company has obtained liking exemption for its products. At Tientsin, Tsingtao and certain cities in Manchuria, the factory has agencies and sales departments. Its wholesale prices for the various kinds of canned food are only 50 or 60 per cent of the fixed prices for retail, while on the market the retailers sometimes sell them higher than the fixed prices.

In its rice polishing mill, there are two departments, one for unhusking rice grain (rice with husks) and the other for polished unhusked rice. During the slack season of the year, which lasts from June to September, when few raw materials are obtainable for the food canning department, the mill is in operation. The proceeds derived from this source are enough to cover the running expenses of the factory during the season.

At Yuyao a branch factory of the Ningpo Ju Sun Canned Food Factory was opened last year. Its yearly output is about 100,000 cans, consisting chiefly of *Yu Meng Sheng*. The canned food is prepared by a different method. The food is sterilised by boiling it at a high temperature after the cans are sealed. This method is also effective in preserving the food, as the microbes are killed by the heat. Thus, the canned food can be kept for a considerable time without undergoing any chemical change.

**Coal Mining at Lishan, Fukien.**—Coal mining operations at Lishan, Kienning, Fukien province, were recently suspended on account of transportation difficulties. The mines are located outside the East Gate of Kienning City and cover a total area of over ten square *li*. A syndicate composed of Foochow local capitalists had been working the mines, employing about 100 miners and producing daily on the average of 1,000 piculs (about 50-60 tons) of coal, which was brought down to Foochow by junks over a distance of 520 *li* at $5 a ton for freight. The rate has gone up to $8 a ton on account of local disturbances which interrupt junk traffic. This increased cost of production raised its price on the Foochow market to such an extent that it could not compete with Formosan coal or coal imported from northern provinces, and compelled the mining company to suspend operations. The greatest consumer of Lishan coal in Foochow is the Foochow Electric Power Supply Company. Foochow bakeries and tea houses also use a good deal of this coal but private households consume firewood as fuel. An attempt was made by the coal mining company to create a market for its product by supplying specially constructed coal-burning ovens for private kitchens, but the result was not satisfactory. The Foochow steam launches prefer imported coal to the local product because of certain objectionable qualities in the latter. Fukien backwoods abound in coal deposits but few of them have so far been worked.

---

**Northwest Announces Two New Machines.**—Two new Northwests made their bow at the Chicago Road Show for 1927. These machines are known as Models 2 and 3. The first is built as a shovel with a capacity of ½ cu. yd. and is convertible to a ½ cu. yd. crane and a ½ cu. yd. dragline with a 35-ft. boom. The Model 3 is built as a ¾ cu. yd. shovel and is convertible to a ¾ cu. yd. crane and a ¾ cu. yd. dragline on a 35-ft. boom.

These new Northwests have been put on the market in answer to the demand for small capacity revolving machines having the profitable features pioneered by Northwest and embodying the high class of construction maintained in the Northwest Models 104 and 105.

The Models 2 and 3 are in every way equal to the famous Models 104 and 105 and have all the exclusive Northwest features. Northwest simplicity is at once apparent; there is roominous, strength and endurance in every line. The same materials are used in corresponding parts.

Ease of operation for the increase of yardage has been made a feature. Full traction is maintained on both crawlers while turning as well as while going straight ahead; either crawler is slowed down, not blocked; steering is by one man from a seat in the cab; heavy duty self-aligning ball bearings are used on all high speed shafts, reducing friction loss and eliminating constant attention to lubrication.

The drive from the engine is through helical cut steel gears in an oil bath and mounted on ball bearings.

Rotating and crawler based are heavy steel castings and all parts are of generous proportion, in keeping with the heavy duty of shovel, crane and dragline service.

Convertibility can be made in the field from one type to the other. This is accomplished in the same manner as on the bigger machines, by simply changing booms and without putting in or taking out extra drums or adjusting crowding chains.

The power plant for the Model 3 is a Wisconsin motor, having four cylinders with a 5¼ in. stroke and 6½-in. bore. This motor develops 56 horsepower at approximately 800 R.P.M.

The power plant for the Model 2 is similar but smaller. It also is a Wisconsin and has a 4½-in. bore by 5-in. stroke, developing 48 horsepower. Both of these motors are heavy duty in every respect. Bearings are liberal, lubrication is force-feed and an air cleaner is provided.

When electric power is desired both models may be provided with electric motors of suitable horsepower. This should only be used where mobility is not a determining factor in profit.

For yard or pit work it is highly profitable.

These two new Northwests have been welcomed by many industries having use for the smaller capacity machines and desiring their low cost operation and low first cost.

They are admirably adaptable to the building supply yard, the gravel pit and smaller brick plant. In many cases they will be found to be a valuable adjunct to bigger equipment on road or sewer work or for drainage and irrigation.

**Long-Distance Telephone in Tsinan.**—In order to facilitate transmission of military despatches, the provincial authorities of Shantung have decided to instal a long-distance telephone system throughout the province, beginning with the 10 districts in the Tsinan circuit which includes Changtsing, Tsiho Tsiyang, Tsitung, Changkiu, Changshan and Sincheng. Preparations for the installation are now being made with funds contributed by the 10 districts concerned.

---

**Pei Yah Industrial Factory, Tientsin.**—The Pei Yah Industrial Factory organised in 1920 with a capital of $30,000 on a partnership basis, is now the only Chinese button factory in Tientsin, manufacturing buttons from pearl shells and ox horns and hoofs. The shells are produced at Tungho and Siho and brought to Tienstin by fishermen in April, May, June and July. Tungho and Siho shells are better in quality than Wuhu products (See *Bulletin* Vol. VIII, No. 261), having thicker edges and more shiny surfaces. The price this year is a little over $4 a picul. Ox horns and hoofs are partly produced locally and partly supplied from Kalgan, Tangshan and Hokienfu in Chihli province. They are usually shipped to Tientsin for sale, but the factory occasionally sends collecting agents to the places of production. The supply on the Tientsin market is very much reduced this year on account of civil war, resulting in considerably higher prices. In 1920 ox horns were sold at $1.60 per picul in Tientsin, but prices have now risen as high as $7 or $8 a picul.

The largest pearl buttons manufactured in this factory are about an inch in diameter. From one piece of middle-sized shell, two large buttons and some smaller ones can be made. The smallest black buttons are made from ox hoofs and larger ones from horns. The manufacturing process is simpler for the pearl buttons, four sets of machines being used, all operated by hand. Round pieces are cut out of the shells with the first set of machines called *tou che erh che* or the second machine is for smoothing both sides of the round pieces; *san che* or the third machine, for making concave depressions on the button surface; and *sze che* or the fourth machine for drilling holes in the buttons. After completing these processes, the buttons are bleached and polished before they are ready for the market.

In making buttons from ox horns and hoofs, the raw materials are first soaked in water for 24 hours and then boiled to make them soft. The softened horns are cut on one side with a knife and gradually shaped into flat pieces by baking. These pieces are turned over to the press room, where they are further baked on an iron plate until oil oozes out and the material becomes exceedingly pliable. Both horns and hoofs are treated in like manner in this respect. When they become sufficiently soft, they are inserted into the press to be perfected. The press is made of iron but the iron presses have been in use in the factory for only one or two years; wooden presses resembling those in the oil mills were employed in the past. The remaining processes for making these flattened pieces into buttons are similar to those used in the case of shells, except that a different polishing machine is used to give the finishing touch to the final product. The factory is equipped with several scores of different machines.

Altogether over forty workmen, thirty being apprentices, are employed in the factory. The regular workmen are paid by the month, but the apprentices who can do a part of the work receive $2 a month, with regular increases every year up to $7 or $8. Every workman in the factory is required to make 1,500-1,600 large buttons or 2,000 small buttons a day on the average. Those who accomplish more than this minimum requirement are rewarded at the end of the year with extra pay. They work 12 hours daily, from 6 to 12 a.m. and from 12.30 to 6.30 p.m. All workmen and apprentices are gievn free board and lodging by the factory. They are given six days' holiday during the China New Year, three days on the Lantern Festival, one day on the Dragon Festival, one and a half day on the Mid-Autumn Festival and two other days every month, but work goes on as usual on Sundays. Apprentices are required to learn the trade, consisting of more than ten different kinds of work, in three years before they become regular workmen in the factory.

The output of this factory finds markets as far as Shansi, Shensi and Honan provinces and in all districts of Chihli province, the bulk being sold in Tientsin and Peking. All buttons are fastened on cardboards, and loaded in parchment boxes ordered from the local box makers. The annual sales of buttons amount to over $40,000, when business is normal.

**New Electric Light Companies in Chekiang.**—Electrical enterprises in Chekiang province are fast growing in number. In Western Chekiang, electric light and power companies have been established not only in all *hsien* cities but also in most of the important business towns. Eastern Chekiang, however, is less prosperous than Western Chekiang, but even here, electric light and power companies are gradually coming into existence. During the past two or three months, about half a dozen new electric supply companies have been established or are being established in different parts of the province as described hereunder :

Fuyang Ping Li Electric Supply Co. was organised at Szepo, Western Chekiang, in September. It supplies electricity for lighting and for grinding rice.

At Santunchen, a densely-populated town in the district of Hangchow a new electric light company has just been organised, and installed with a twenty horse-power dynamo.

Sin Hing Electric Light Co. located at Yuankiahsiang outside the West Gate of Sinteng city, was organised in November by a local merchant with a capital of $8,000.

Shentang Electric Light Co. was also organised in November at Shentangchen in the district of Haiyen by some local merchants with a capital of $10,000.

Pu Yao Electric Light Co. which has been in operation since October 1 was organised by a merchant in the city of Yotsing, in Eastern Chekiang.

Tsungjen Electric Light Co. is under organisation at Tsungjen, a town in the district of Chenghsien. All machinery ordered from Shanghai will be completely installed and set in operation within the present.

The Chowhong Electric Light Co. is being promoted by a local merchant at Chowhong, a cotton distributing centre in Yuyao district.

At Fotang, a large commercial centre on the Upper Tsientang River, the local gentry is promoting the organisation of an electric light company with $10,000, one-half to be subscribed by the local merchants and the other half by the Lanchi Electric Light Co. The latter company and the promoters are negotiating terms of co-operation in the new enterprise.

All electric supply companies mentioned above been registered with the Provincial Industrial Department of Chekiang.

---

**Magnesite Beds in Manchuria.**—The magnesite beds in Manchuria are estimated at about 20,000,000,000 tons. An analytical study of the Manchurian output has shown that it compares creditably with foreign products. It was first experimented upon at the S.M.R. Co. Central Laboratory as material for firebrick. Next, the experiment was extended to the manufacture of Sorel cement, which is used for making the substitute for linoleum known as lignoid. Experiments are being pursued in the making of magnesium carbonate, magnesium sulphate, metallic magnesium, etc. How to turn these experiments to practical account is to be taken up by the Laboratory next year.

---

**Aluminum Body Plans To Have Toyama Plant.**—Plans announced by a special investigation committee composed of Government experts and representatives of metallurgical companies call for the building of an aluminum factory in Toyoma Prefecture, the work to be started this summer. Toyama Prefecture has been chosen because electric power can be obtained more cheaply there than in any other possible site for the industry.

It has been announced further that the required material can be obtained from Iwate Prefecture and Fuchow, Kwangtung, to the amount of about 8,500,000 tons annually. The former place will supply about 4,000,000 and the latter 4,500,000 tons.

**New Industrial Company in Shanghai.**—The Lung Hai Dah Chen Industrial Company, 51 Kiangse Road, Shanghai, has been organised with a capital of $1,000,000 divided into 20,000 shares. It is divided into four departments, namely, transporting, real estate, mining and shipping. The shipping department has rented the Ta Teh Maru from a Japanese company, sailing between Tientsin and Shanghai. Several other steamers are being negotiated for. Tai Tung-sheng is the general manager.

---

**New Beacon Put on Fuzan Harbor.**—A new lighthouse now is brightening the way for mariners who pass or enter Fuzan Harbor, Korea, it is announced in a notice by Viscount Makoto Saito, Governor General of Korea.

The lighthouse, known as the Fuzan Harbor South Breakwater beacon light, is located at the tip of the breakwater, and consists of a white, iron square tower. It replaces a temporary beacon light which was removed on March 1.

The height of the new light is 12 meters above the mean sea level, 7.6 meters above the base. It is described as of an " inferior class " in the official notification, and flashes a green light of acetylene gas, showing two flashes every 1.5 seconds, with an eclipse of 4.5 seconds.

The entire horizon is illuminated by the arc, which has a power of 50 candles, and extends seven nautical miles in a clear night. The light has no watchman, and the notice to mariners states that " if it go out by accident there may be some delay in relighting it."

---

**Tokyo Gas Concern May Double Plant..**—The general meeting of shareholders of the Tokyo Gas Company, approved the regular 9 per cent. dividend, with the understanding that it would be increased if the assembly granted the request of the company. This decision was taken with the idea that it would facilitate the raising of capital for the company's exansion plan.

The Tokyo Gas Company is planning to double its present plant, in order to keep pace with the demands upon it occasioned by the growth of the city. It hopes to be able to develop a capacity of 60,000,000 cubic feet in the course of the next ten years. During the last term the concern increased its capitalization from Y45,-000,000 to Y100,000,000 and called in the first payment of capital. The work of expansion is now well under way. In order to complete it the company must call in more capital and feels that it is hindered by the inability to declare dividends in accordance with its ability to pay them.

The company authorities argue that there should be no objection from the city authorities to raising the rate, as that in Tokyo is now the lowest of any of the large cities in the country.

The company's accounts for the last half-yearly term were as follows :

| | | |
|---|---|---|
| Gross profit ... ... ... ... | Y.3,414,000 | Y.3,414,000 |
| Depreciation ... ... ... ... | 471,000 | |
| Profit and Loss ... ... ... ... | 27,000 | 498,000 |
| Net Profit ... ... ... ... | — | 2,915,448 |
| Payment to municipality ... ... | 174,926 | |
| Employes' retirement fund ... ... | 75,000 | |
| Reserves ... ... ... ... ... | 138,000 | |
| Bonus for officials and " social expenses " | 100,000 | |
| Dividend (9 per cent. p. a.) ... ... | 2,334,375 | |
| Carried forward ... ... ... | 93,146 | 2,915,448 |

The net profit for the last term gained Y.352,000 over the term preceding it. The gross profit jumped Y.579,000 over the corresponding term of 1925 and Y.384,000 over the first 1926 term. The gross profit ratio, however, declined from 13.5 to 13.2 per cent., due to the fact that capital had been called in but had not yet become productive.

**Telegraph Conference in Hankow.**—The authorities in Hankow have circularised the Superintendents of Telegraph administrations at Canton, Nanning, Changsha, Chungking, Kweiyang, Foochow, Nanchang, Sian, Lanchow and Hankow, inviting them to a conference to be held in Hankow on March 1 to discuss the following reforms: (1) repair of telegraph lines, (2) increase of salaries for the employees of the telegraph administration, (3) increase telegraph rates in order to raise funds for necessary improvements and (4) enforce a retrenchment policy by weeding out superfluous officials.

---

**Shale-Oil Experiments in Manchuria.**—Officials of the Fushun Collieries of the South Manchuria Railway Co. are quoted in the local press as saying that "all the hopes of the management have been fulfilled" by the results of the oil-shale experiments carried on at the collieries last fall. The statement adds, however, that the experiments will be continued until March, for the purpose of thoroughly testing the new oil-extraction methods being evolved. There is also mention of an agreement to be concluded with the Japanese Navy in the near future, with a view to supplying it with fuel oil extracted from shale by the new distillation process.

---

**Dry-Distillation Furnace Used**—According to press notice, the company claims that the 40-ton furnace now in use has been found capable of treating about 46 tons a day without a strain, and that the resulting percentage of shale oil and sulphate of ammonia has exceeded expectations. The trace of carbon found can probably be eliminated without great difficulty. The company has been using the dry-distillation furnace—a new method, worked out at Fushun as a substitute for the Scotch distillation furnaces.

---

**Reopen Waterway between Tientsin and Peking.**—Merchants in Peking and Tientsin are interesting themselves in a proposal to reopen the Grand Canal between Tientsin and Tungchow. The scheme is induced by the shortage of trucks on the railway and the high tariff for railway service. It is proposed to engage war and famine refugees for the work of dredging.

**Mukden-Chengkiatun Long Distance Telephone.**—The long distance telephone service between Mukden and Chengkiatun has been opened to the public.

---

**British Electrical Success.**—*The Daily Express* says that British electrical industry has obtained contracts totalling more than $100,000,000 in the British Dominions, Brazil, Argentine, Japan, China Norway, Sweden, Poland, France, Italy, Russia, Belgium, Spain, Holland, Denmark, Mexico, Chile and the United States, in face of intense competition from Germany, United States and Switzerland. Railway electrification and water power prospects, giant power stations and transmission systems and industrial electrification are said to have formed bulk of overseas demand.

---

**Industrial Bureau of Kiangsu.**—The Industrial Bureau of Kiangsu province in Nanking, opened an inquiry office on November 27 to disseminate information regarding agricultural, industrial, commercial, and mining conditions of the province. The inquiry office is managed by members of the bureau and is established on its premises. The inquiry office is modelled after a similar office in the Ministry of Agriculture and Commerce. The expenses of the inquiry office are appropriated from the bureau. No inquiry is valid unless sent with the recommendation of some public organization and has reference to agriculture, industry, commerce, or mining. All expenses incidental to the investigation are to be borne by the inquirer.

---

**Showa Power Work Stars.**—The Showa Electric Power Company, which was incorporated last December, at a directors' meeting held recently in Osaka, decided to erect a power station capable of generating 45,000 k. w. along the Shogawa in Toyama Prefecture. The building expenses are estimated at Y.18,000,000. The transmission line is to be 193 miles long. It will start at the Shogawa River and ends at Hachio in Osaka, going by way of Fukui. It will carry voltage of 154,000. The construction expenses are Y.13,000,000. Work is to be started in April and be finished by the end of 1929.